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Gleanings in Bee Culture



BEE-KEEPING IN SOUTH AFRICA—*Courtesy of W. N. Scott, Queenstown.*

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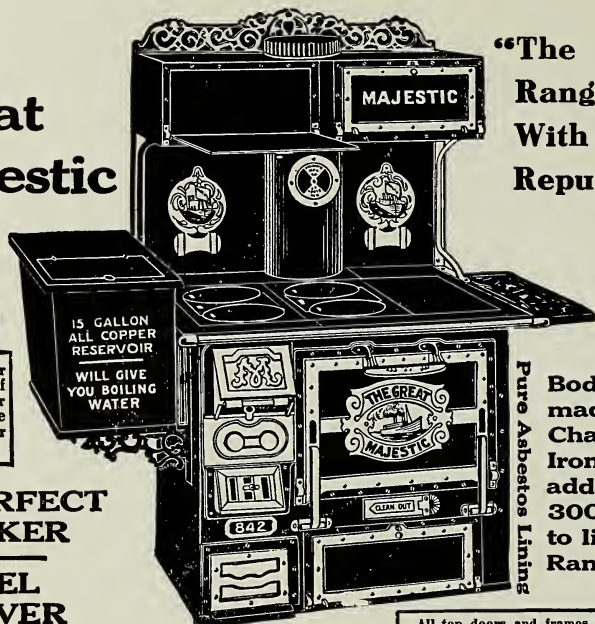
October 1, 1908

No. 19



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You don't buy a range every year. Therefore when you buy one, buy the best. At first the Great Majestic may cost you a very little more than an ordinary range, but in the end it is much cheaper. It has durability and will out-last three ordinary ranges. It is scientifically built—no heat can escape or cold air enter—will save half on your fuel bill. A perfect baker—not one day good—next day poor—but always uniform. Will save you from disappointment and poorly cooked meals. Your Best Guarantee: 1st—The reputation of the plant behind the range. 2d—Hundreds of thousands in use every one giving satisfaction. We want you to see The Great Majestic. If no dealer near you has it, write us—we will send you free our booklet "Range Comparisons," and tell you where you can see a Majestic—the range that gives satisfaction and out-lasts all others.

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Make up a list of what you need. Send it to us for our price. If you are putting up a building of any kind whatsoever let us figure with you. Our prices talk louder than words. Have your carpenter or contractor send us your list of what is needed if he has charge of your building. Don't pay exorbitant prices to the lumber trust with their long line of lumber yards all over the country. Don't let the local dealer soak you with his heavy profit. Remember: Chicago House Wrecking Company buys millions of feet at a time under circumstances of forced sales which means sacrificed prices and enables us to sell even as low as cost without loss. You take no chances in dealing with the Chicago House Wrecking Company. Whether for \$10 or \$10,000 your order will be filled carefully. Our lumber and supplies are guaranteed exactly as represented. If you have no need for a whole carload yourself get your neighbors to club in with you. By buying a carload you can save all kinds of money on freight charges.

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**CHICAGO HOUSE WRECKING COMPANY,
35th and Iron Streets, CHICAGO, ILL.**

Chicago House Wrecking Co., Chicago

Honey Markets.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent), cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING-RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 2.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 3.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade; wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

INDIANAPOLIS.—The demand for the best grades of honey is good. Producers are offering fancy white comb honey at 12½; No. 1 white at 12; white-clover extracted, in five-gallon cans, at 7; very little demand for amber at any price. Many bee-keepers seem to be holding their honey for higher prices. Beeswax is steady at 28 cts. cash, or 30 in exchange for merchandise.

Sept. 21.

WALTER S. POWDER, Indianapolis.

DENVER.—We quote No. 1 white comb honey, per case of 24 sections, \$3.15; No. 1 light amber, \$3.00; No. 2, \$2.85; strained and amber extracted, 6¼ to 7¼; light amber, 7½ to 8¼; white extracted, 8½. We pay 21 cents for clean yellow beeswax delivered here. Owing to a large supply of fresh fruit in this section the demand for comb honey is light at present.

THE COLORADO HONEY PRODUCERS' ASS'N.,

Sept. 19.

Denver, Col.

CINCINNATI.—The marked decrease in the demand and consumption of honey this season is not due to an oversupply; but after careful investigation of the conditions we find there are two causes. In the first place there was more white comb honey shipped last year from the West into the Eastern markets than could be sold, and even to-day there are stacks of it still remaining in every market of any importance. On the other hand, the consuming trade has not wanted as much comb honey as was supposed would be the case, and for these reasons that article is going begging. Fancy and No. 1 comb honey are selling at 12½ to 16. Lower grades must be sold at a sacrifice. The extracted-honey market is experiencing the same conditions, and is undergoing the same ordeal. Quote amber honey at from 5½ to 7 in barrels, according to the quality and quantity purchased. White clover is selling at from 7½ to 9½, according to the quantity.

For beeswax, from good to choice, we are paying 27 cts. delivered here. This must be free from dirt.

Cincinnati, O., Sept. 17, 1908. THE FRED W. MUTH CO.

SCHENECTADY.—New crop is coming forward rather slowly, and quality is hardly up to the standard. Buckwheat is a short crop in this locality. We quote fancy white, 15 to 16; No. 1, 13 to 14; mixed and buckwheat, 11 to 12; extracted, light, in kegs and 60-lb. cans, 7 to 9; dark, 6½ to 7½. Beeswax, 28 to 30.

Sept. 18.

CHAS. McCULLOCH,
Schenectady, N. Y.

BUFFALO.—Demand for honey here is just fair, not what it ought to be. Prices are not too high; hard times is the reason, I think. I look for dull low prices all the season. No. 1 fancy white comb, 14 to 15; No. 2, 10 to 12; extracted, white, 6½ to 7½; dark, 6 to 6½. Beeswax, 28 to 30. Tumbler honey, 85c to \$1.00 per doz.

Sept. 19.

W. C. TOWNSEND,
Buffalo, N. Y.

NEW YORK.—Receipts of comb honey are now quite heavy, from New York and Pennsylvania mainly. Demand is fairly good, especially for No. 1 and fancy white; also for fancy buckwheat. Lower grades are not in as good demand. We quote fancy white, 15; No. 1, 13 to 14; No. 2, 12; dark, 10 to 11. For extracted honey the demand is improving, especially for California, which, on account of the short crop, is ruling rather high in price. We quote California white sage at 9; light amber, 8; amber, 7; white clover, 8 to 8½; light amber, 7 to 7½; dark, 6½. Very little doing in beeswax; good supply, and market easy at 28 to 29.

Sept. 21.

HILDRETH & SEGELKEN,
New York.

PHILADELPHIA.—This market is well supplied with local honey, the fall crop having been gathered at this time. It is one of the largest we have had here for years. Outside of the Eastern States, later reports show the crop is much below the first reports. This condition makes our market very unsettled. We quote: Fancy comb honey, 15 to 16; No. 1, 14 to 15; amber, 12 to 13; extracted, white, 7 to 8; amber, 6 to 7. Beeswax, 28.

Sept. 21.

WM. A. SFLSKR,
Philadelphia, Pa.

TOLEDO.—Extra fancy Ohio and Michigan clover honey, in no-drip shipping-cases, brings 15 to 16 cts.; No. 1, 14½ to 15½; No. 2, 14. Extracted, in barrels is bringing from 7 to 7½; cans the same. Beeswax, 28 to 30. These are our selling prices. The demand for honey has not been very brisk, owing to the large fruit crop, and most dealers seem to have carried over quite a quantity of honey from last year. However, we look for a better demand within the next 60 days. Prices will be considerably lower than last year. Arrivals of new honey exceed the demand.

Sept. 18.

THE GRIGGS BROS. & NICHOLS CO.,
Toledo, O.

COLUMBUS.—The movement of honey has not been up to the usual volume which takes place at this time of the year, and we presume it is due to two causes—in the first place, the supplies throughout Ohio this season were unusually large, and the great part of our grocery trade received honey from local growers. In the second place, quite a good deal of western honey was carried over by the retail merchants, and it has made them rather backward about buying. Our market to-day is as follows: Fancy white, 15; No. 1 white, 14; No. 2 white, 12; amber, 10.

Sept. 21.

EVANS & TURNER,
Columbus, O.

PITTSBURG.—At this writing very little honey is in the hands of the jobber; but several large shipments are moving this way. Demand is good, prices firm. Jobbers are getting from the retail merchants \$4.00 per case of 24-sections, fancy and No. 1; white clover or alfalfa, \$3.75, jobbing, buckwheat, \$3.75; water-white extracted in 60-lb. cans, 8½ to 10; amber, 7 to 8½.

Sept. 18.

J. A. W.

BOSTON.—We quote fancy white comb honey at 16 to 17; No. 1, 15 to 16; extracted, white, 10; light amber, 8; amber, 7; in barrels, 6 to 7. Beeswax, 30.

Sept. 20.

BLAKE-LEE CO.,
Boston, Mass.

Continued on page 1167.

Extracted Honey Wanted

We are always in the
market.

If you have any to sell, mail
small average sample to

**NATIONAL
BISCUIT COMPANY**

Purchasing Department,
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HONEY WANTED

both
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No shipment too large for us. Send samples, and state best price delivered here. We remit as soon as goods are weighed in. Best of references furnished. Don't sell until you quote us price; it will be to your interest. Large stock of Root's bee goods carried constantly on hand. Greatest shipping center in the United States—both rail and boat. Try us.

Griggs Bros. & Nichols Co.
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If your honey crop is short, and you need something fine to supply your customers, write to us, for we have it.

FINEST Water-white Mountain-sage Honey (extracted).

BEST White-clover Honey (extracted).

WATER-WHITE Sweet-clover Honey (extracted).

All in crates of two 60-lb. cans each.
Also FANCY COMB HONEY.

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Offer No. 5B. WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT, by A. I. Root. Herein do our old friend give some practical ideas about making a living independently around one's own home. It suggests many ways of making a living for men with little capital. With GLEANINGS for a year and this book the charge is \$1.35.

Offer No. 6B. A copy of MINK-TRAPPING, and GLEANINGS one year, \$1.30. The methods as published are those of experienced trappers from all parts of the country.

Offer No. 7B. A copy of FOX-TRAPPING, and GLEANINGS one year, \$1.30. A book of instructions telling how to trap, snare, poison, and shoot. A valuable book for trappers.

Offer No. 8B. BEE GLOVES. one pair cloth bee-gloves, with or without fingers, with GLEANINGS one year, \$1.35.

Offer No. 9B. One F. F. FOUNTAIN PEN No. 2, with GLEANINGS one year, \$1.50.

The above prices are all postpaid.

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THE A. I. ROOT COMPANY, MEDINA, O.

Reasons for the Price

OF MY

Raspberry Honey.

I ask ten cents a pound for my raspberry honey. This is slightly above the market price, but there are reasons.

In the first place, very little raspberry honey is produced. It is a novelty—something out of the ordinary—like orange-blossom honey for instance.

In addition, it is of very superior quality; so much so that it was awarded the gold medal, in competition with other honeys, at the Jamestown Exposition. It has a flavor all its own—a flavor that smacks of the wild red raspberry of the woods.

Another most important reason why I should get a good price for my honey is the manner in which it is produced. It is left on the hives for weeks after it is sealed over, and thus acquires that finish, that smooth, oily richness, that thick, rich deliciousness that can be obtained in no other way.

It costs more to produce such honey, there is not so much of it,

and it is worth more than the ordinary honey; just as big Northern Spy apples, streaked with crimson and filled with juicy spiciness, are worth more than ordinary fruit.

As a finishing touch the honey is put up in bright new 60-lb. tin cans, securely boxed, and the boxes bound with iron so that they will bear shipment; in fact, I will guarantee safe arrival in perfect condition.

For a single 60-lb. can the price is \$6.25; for two cans in a case (120 pounds) the price is \$12.00 a case, regardless of the number of cases that are taken.

If you are not acquainted with this honey, send me ten cents and I'll mail you a generous sample, and the ten cents may apply on the first order that you send.

W. Z. HUTCHINSON, Flint, Mich.

HONEY-JARS

from

New York City

We consider the No. 25 jar with solid metal cap and waxed liner the best jar made for honey.

Gross crates \$5.00; 5 gross, \$4.75 per gross.
12-oz. screw-cap jar . . . 4.50; 2 gross, 8.25 per gross.
1-lb. sq. jar with cork . . . 5.00;
Italian queen 1.00. Catalog free.

Apiaries, Glen Cove, L. I.

I. J. STRINGHAM 105 Park Place, New York

Honey Market continued from page 1164.

KANSAS CITY.—The demand for honey is quite brisk at present, although the supply is somewhat limited as yet. Strictly No. 1 white comb in 24-section cases is selling at \$3.25 per case; amber comb, \$3.00; extracted, 8 cts. per lb.

Sept. 18. **C. C. CLEMONS PRODUCE CO.,**
Kansas City, Mo.

CINCINNATI.—The demand for honey has improved considerably, but no high prices have as yet been obtained. We quote No. 1 white comb honey at 14; off grades are not wanted at any price. White-clover extracted honey sells at 8 to 8½; amber, in barrels, 5½ to 6. Beeswax is selling slowly at 31.

Sept. 18. **C. H. W. WEBER,**
Cincinnati, O.

ST. LOUIS.—The receipts of new crop honey are very much in excess of the limited demand, especially comb honey, which rules very dull. Fancy white comb honey is freely offered at 12½, with very few takers. Choice amber comb honey is quotable at 11 to 12. There is absolutely no market for broken or leaking comb honey. Extracted honey is also a slow seller. The choicest amber honey is quotable at 5½ to 6 cts. in barrels, and 6½ to 7 in 5-gallon cans. Dark and inferior grades rule at considerably less.

Sept. 18. **R. HARTMANN PRODUCE CO.,**
St. Louis, Mo.

SAN FRANCISCO.—The greater part of the honey crop has been shipped, and only scattering lots are now arriving. The white and water-white grades are in good demand and there is a fair demand for the lower grades. Producers are receiving the same prices as before, and the following prices rule in the market: Water-white comb, 16 to 17; white, 15; water-white, extracted, 8 to 8½; light amber, 7 to 7½; dark amber, 5½ to 5¾; candied, 5¼ to 5½.—*Pacific Rural Press*, Sept. 19.



**How to Get a
Delicious Apple
& Banner Grape
Tree & Vine Free**

Fill in Coupon
below and get
THE FRUIT-GROWER

three months, Free and Our Offer to give away 2 Superb new fruits. Handsomest farm paper published, interesting and helpful, even if you have only a few trees or plants. New fruits are finest ever introduced and would cost \$1.60 at nursery. Both perfectly hardy. Delicious sold high as \$6 bushel. Grapes are just grand. One of the Three handsome FREE trial copies will be

Our Homeseekers Edition

telling about wonderful new fruit districts in Northwest, West and Southwest. Our editor personally visited these sections and tells honestly and vividly all about them. This number alone worth hundreds of dollars to those seeking new and profitable home lands. Write now to The Fruit-Grower, Saint Joseph, Missouri.

The Fruit-Grower, Box 997, St. Joseph, Mo.

Send paper 3 months FREE and tell how to get New Fruits without cost, after which I will accept offer or notify you to stop the paper.

Name _____

Town _____ State _____

LIVERPOOL.—The honey market continues steady with a good demand for lower qualities. We quote: Chilean, 4½ to 6 cts.; Peruvian, 3½ to 4½; California, 8½ to 11; Jamaican, 4½ to 5; Haitian, 5 to 7. Beeswax continues firm—African, 29; American, 30 to 34; West Indies, 29 to 33; Chilean, 30 to 36; Peruvian, 34 to 35; Jamaican, 34 to 35. **TAYLOR & CO.,**
Sept. 20. 7 Tithebarn St.

The A. I. Root Co., Medina, O.—Some say the locality is the prime requisite in bee-keeping; others say the hive; others, the man; but what about the smoker? It plays a mighty important part in modern bee-keeping. It is needed at every hive and at almost every movement.

Your Jumbo brass smoker is certainly the best I have used in twenty-seven years, and my help grab it first out of three makes; and as the price of a good smoker is soon gained in time and comfort, send me at once two more. **R. L. HOLTERMANN.**

Brantford, Ont., Can., July 10, 1908.

GLEANINGS IN BEE CULTURE

E. R. Root
Editor

A. I. Root
Editor Home Department

H. H. Root
Ass't Editor

Department Editors:—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, "STENOG," LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, W. K. MORRISON.

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FARM LIBRARY FREE.

The *Farm Journal*, of Philadelphia, is now making a very attractive offer to all up-to-date farmers who are on the outlook for superior reading. It will give, for a limited time only, a five-year subscription to that valuable paper, and any one volume of Biggle's Handy Farm Library, for one dollar. Surely a five-year subscription to an excellent farm paper is worth more than a dollar; and, in addition, you will get an excellent bound book relating to some branch of farm life. This looks to us like an extra-good offer—in fact, one could hardly expect to get any thing more from one dollar.

But the *Farm Journal* people go further than that, and are prepared to offer the other nine volumes of their Farm Library on terms that are equally favorable. With very little work on your part you may earn a ten-volume farm library that you will be quite proud to own. There are none of the onerous restrictions attached to this offer; on the contrary, the offer is plain, simple, easily understood, and very easily carried out. Write to the *Farm Journal*, 1003 Race St., Philadelphia, Pa., and get all particulars.

A USEFUL MACHINE.

One of the most useful inventions of the 19th century was the machine which cuts up green bone into pieces small enough for a hen to swallow without difficulty. This made it possible for the ordinary poultry-keeper to have artificial insects for his fowls any day in the year at a very small expense. For chickens, the green-cut bone is a perfect substitute for insects. The general effect is the same, and many practical egg-growers would hardly know what to do without such machines. The bone is cheaply and easily secured, and in all parts of the country. One of the pioneers in the manufacture of these machines is Mr. F. W. Mann, of Millford, Mass., whose fame in this connection is world-wide. He was early in the field, and his machines are practically perfect for the purpose intended. We believe Mr. Mann is quite liberal in the treatment of his patrons, and is prepared to stand behind any claims he may make in behalf of his machine—in fact, does business on the most up-to-date business principles. Thousands of his machines are in use all over the globe, and many of them have stood the test of years from our own personal observation. See advertisement on page 1215.

4%	A request on a postal will bring you our free booklet	Established 1892

BANKING BY MAIL

We will pay you 4 per cent—compounded twice a year on your savings account whether large or small—secured by assets of over \$700,000. Managed by prudent and successful business men, and subject to and incorporated under the rigid Ohio State banking law. Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

Send for the booklet to-day.

**THE SAVINGS DEPOSIT
BANK COMPANY**

MEDINA, OHIO

**"If goods are wanted quick, send to Pouder."
Established 1889**

Another Pennant for Indianapolis

By the Bee Crank

Greatness has been once more thrust upon Indianapolis—this time by her baseball team in competition with players from seven other large cities, from Minneapolis to Louisville, and Kansas City to Columbus, Ohio, comprising the American Base Ball Association.

As if the distinction of having the bee-supply house that holds the record for the most perfect and prompt delivery service was not enough!

Indianapolis has also broken the association record of attendance at any one ball game—more than 21,000 people witnessing the afternoon game of Labor Day, which shows what a hold good clean sport has on the affections of the American people.

I have not permitted baseball nor any other attraction to interfere with my specialty of prompt shipments. The following letter is not unlike



many others that I receive. Read what the other man says—note how it agrees with what I say:

LAWRENCEVILLE, ILL.
WALTER S. POWDER,
Indianapolis, Ind.

Dear Sir:—The bee-supplies that I ordered on the 29th reached me on the 2d. I am much pleased with the goods, and you surely do get them out promptly. You may count me as one of your customers as long as I am in need of supplies.
Yours very truly, JOHN DAVIS.

Root's goods at Root's prices, Pouder service included. You may order from the Root catalog if you like, but you should have mine. Ask for it.

Upon all cash orders received during October I will allow a special discount of 6 per cent. It will pay you to anticipate your wants, even if you can not use the goods for several months. At that your money will earn good interest.

Send me your beeswax. I pay highest price, cash or trade, and make settlements as promptly as I make my shipments.

Walter S. Pouder,
513-515 Massachusetts Avenue, Indianapolis, Ind.

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THE MEDINA SAVINGS DEPOSIT BANK.

This is one of the sound financial institutions of the Western Reserve of Ohio. With no great flourish of trumpets it has achieved great success, and now has depositors in all parts of the Union. This is rather out of the ordinary for a bank situated in a county town of no great importance; but the fact that it is in the center of a rich agricultural region gives it fine opportunity to loan its money on good farm security that is never likely to deteriorate in value. It does not have to go far to place its money in good investments, nor is there any speculation required. Such a condition practically eliminates losses, for its managers and directors are careful, prudent financiers who take no chances whatever, so that the secret of its success is very easily explained. If you have any money for safe keeping, with a fair interest added, perhaps it may be well to correspond with the Medina Savings Deposit Bank. They are nice people to deal with.

THE LORR OF THE HONEY-BEE.

The above is a new book on the life and work of the bees. It is on the same general plan as Maurice Mæterlinck's masterpiece, "*The Life of the Bee*," but is far more accurate. The author, Mr. Tickner Edwards, is not only accurately informed on practical bee-keeping, but is well up on the science of the honey-bee. He is not so facile a writer as our modern Shakespeare (Mæterlinck) yet he is a gifted author, and writes with fluency, ease, and fine diction. *THE LORR OF THE HONEY-BEE* is one of those books the bee-keeper will buy to read through carefully during the long winter evenings when his pets are snugly asleep in the cellar. After he has read it through he will commence right over again, as it makes good reading—for a bee-keeper. It contains a number of beautifully executed engravings, some of great interest. One is a fac-simile of Butler's "Bees Madrigal" copied from the edition of 1623, giving both words and music. The half-tone work is excellently well done, and the typography is in keeping with it.

Some of the ideas advanced by the author are calculated to cause the average bee-keeper to sit up and take notice. It is evident the bee has been well studied by the author, and that the striking features of bee life are familiar to him, but mean something different from what the ordinary bee-keeper believes to be the truth. This is all done in an easy, graceful manner that is sure to win many readers.

The work is dedicated to his friend, Mr. T. W. Cowan, chairman of the British Bee-keepers' Association. The publishers are Methuen & Co., of London, England. For price see advertisement elsewhere in this journal.

MAKING THE HENS LAY WINTER EGGS.

It is now well known where the money is in the poultry business. It is not in producing eggs in summer when poultry-fruit is cheap, neither is it in producing early chickens. Where the expert shows his skill is in producing eggs when they are worth 50 or 60 cts. a dozen, which, of course, is around Christmas. There are no bugs, grasshoppers, grubs, and other insect food to be obtained then, so that, perforce, we must find a cheap substitute. There is not enough protein (albumen) in two bushels of corn to produce a dozen eggs. Fresh-cut raw bone will do the business for us. In fact, hens can be made to lay more eggs in winter than in summer. Mr. H. B. Humphrey, manufacturer of the Open-hopper bone-cutter bearing his name, says he can do it and we believe it, judging from what others have said about green-cut bone. He cites an instance of a man owning 70 hens that averaged 40 to 50 eggs a day during December, January, and February, getting occasionally 55 eggs. Such a man is a successful poultryman.

If you desire more information relative to these helpful bone-cutters write to the manufacturer, H. B. Humphrey, Joliet, Ill.

SUBURBAN LIFE.

One of the handsomest magazines published in this or any other country is *Suburban Life*. Recently it has taken on a new lease of life, and in time will probably lead all other magazines of its kind, though it is, comparatively speaking, very young in years. Its publishers are among the most enterprising firms in America, who will not hesitate to spend money to make it the recognized leader in the field it occupies. These fancy country magazines are doing a great deal to make farming popular among the young people by showing them the beautiful homes other folks have in the country, and also how their own farm can be improved to any extent by the judicious expenditure of brains, time, and money. Many farmer boys will not believe farm life can be made so attractive until they see the splendid pictures which adorn the pages of *Suburban Life*. The girls are delighted to see the pictures of the interior furnishings of the country homes belonging to others more fortunately situated in some respects. From these pictures young ladies gain ideas which would be difficult for them to obtain in any other manner. Thousands of readers have put these ideas into practical use, and many an American farm home is the happier and brighter for it. By proper attention to landscape gardening, 90 per cent of our farm-houses can be set off to great advantage. At present they look too plain and uninviting. Look at the question in this light, and you will decide that a subscription to *Suburban Life* is a cheap investment.

ONLY FOUR AGRICULTURAL PAPERS ON THIS LIST.

(GLEANINGS IN BEE CULTURE ONE OF THE FOUR.)
(The Little Magazine with a Big Field.)

If more evidence were needed than we have already given on these pages the following letter should be conclusive. When a large concern like the Potato Implement Co., and a large agency such as the Long-Critchfield Corporation, select GLEANINGS for page advertisements they do so because they *know* it pays well.

LONG-CRITCHFIELD CORPORATION

The Most Complete Advertising Service in America

Newspaper Magazine, Agricultural, Mail Order, Bill Board and Street Car Advertising.

156 WABASH AVE CHICAGO

150 NASSAU ST NEW YORK

CHICAGO

January 7, 1908.

Gleanings in Bee Culture,
Medina, Ohio.

Gentlemen:-

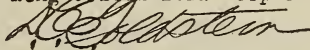
Please find attached, an order for the advertising of the Potato Implement Company, Traverse City, Michigan.

We trust you will give this advertising your hearty co-operation as there are only four agricultural papers in the United States that are getting this advertisement at the present time.

For the page advertisement which is scheduled to appear in the March 1st issue, we must urgently request that you insert this ad opposite a solid page of reading matter, and please give the 56 line ad the best possible position.

Thanking you in advance, we are

Yours very truly,
Long-Critchfield Corporation.



DCG-8

The cost of a page advertisement is only \$50.00. A half-inch space costs \$1.75. If suitable space is selected and good copy furnished the results are certain. For particulars address

ADVERTISING DEPARTMENT GLEANINGS IN BEE CULTURE, MEDINA, OHIO

Hammer Free!

With Every Order of Supplies of \$5.00 or Over.



This is the handiest tool for nailing up hives, frames, and all parts, or for opening up hives. Made of steel, nickeled.

Three per cent discount off all prices in catalog.

FULL LINE OF ROOT'S GOODS

NO CHARGE FOR DRAYAGE.

John N. Prothero
Dubois, .. Pennsylvania

Odds ^{and} Ends Sale on Exhibition Goods While They Last

If you will send us a list of goods that you could use right away, or in the near future, we will quote you prices on such exhibition goods as we may have in stock. Don't wait, because this sale will be over in 30 days

Blanke & Hauk Supply Co.
ST. LOUIS



Standard too ^W o ld Over

Traps
Veils
Hives
Frames
Smokers
Sections
Foundation
Wax-extractors
Honey-extractors
Shipping-cases
Bee-appliances

*Syracuse
The A. I. Root Co.
New York* *Syracuse
The A. I. Root Co.
New York*

BIENZÜCHTER!

von Deutschland, Schwelz, Oesterreich,
u. s. w., senden Sie fuer unsere
1907 Preisliste von

Bienenwohnungen, Rauchapparaten,
Honigschleudern, Handschuhen,
Bienenschleirn, Walzwerken,
Futterapparaten,
Porter's Bienenflucht,
Fluglochschiebern für Kasten,
Königinnenabsperrgittern,
Weiselkäfigen,
Schwarmfangbeuteln,
Entdeckungsmessern,
Dampfwachsschmelzern,
Wabenentdeckungsaappa-
raten, und allen anderen
Bienenengerätschaften der

A. I. ROOT COMPANY

Grösste Fabrik Ihres gleichen In der Welt

EMILE BONDONNEAU

General Vertreter für Europa und Kolonien
142 Faubourg Saint Denis, Paris, 10me.

"Practice Makes Perfect."

A little girl sat on her father's lap, looking into the mirror, and inquired if God made both her father and herself. Being assured that he did she remarked that he was doing better work than he ever did before.

It is simply the old adage over again, and it is true of *The A. I. Root Co.'s* Bee-keeping Supplies; and while perfection can never be attained they are as near perfection as improved machinery and years of practice can well make them. If you have never seen them, or if you have, and have not a catalog, send at once for my 40-page catalog, illustrated profusely, and giving prices of every thing used in the apiary. *It is free for the asking.* Special price list of shipping-cases, and all kinds of honey-packages—wood, tin, and glass. Send a list of what you will need at any time and let us tell you what they will cost you delivered at your station.

Cash or goods for wax at all times.

George E. Hilton

Fremont, . . . Michigan

WESTERN Bee-keepers

.. will ..

SAVE TIME AND FREIGHT

by ordering **ROOT'S GOODS**
from Des Moines, Iowa.

A FULL LINE OF

Shipping-cases, Honey-extractors,

and all other seasonable goods now
on hand.

We are also prepared to supply goods for next season's use at special discounts.

Estimates cheerfully given. Send us a list of your wants, and get our net prices by letter.

JOS. NYSEWANDER
565-7.W.7th St., Des Moines, Ia.

6%

Cash
Discount
for
October
orders
for
"Root
Quality"
Bee-supplies
for
next
season's
use.

Beeswax wanted for cash
or exchange

M. H. Hunt & Son

Lansing, Mich.

"The Information I Got From The Farm Journal Helped Me To Make \$137.00 In Clear Cash"

Mrs. Ollie C. Krieder,
Jamestown, Pa.

"I can make \$30.00 a year more with the help of the Farm Journal. Would gladly pay \$5.00 a year rather than do without it."—M. N. S., Haines, Ga.
"The 'Farmers Problems' of the last few months have been worth more than the subscription price."—Hiram Entrekin, Ohio, Neb.

These are only a few of the thousands who take the trouble to tell us how they have profited through the Farm Journal.

No matter whether you live on a farm large or small—or whether you live in town and only keep a few bees, or a cow, or a horse, or care for a small garden, you will find the Farm Journal filled with timely suggestions for making your work more pleasant and profitable.

No other paper helps the farmer or villager with such valuable information and suggestions, based on facts and experience and not on theory, as does the Farm Journal.

The October issue will contain helpful articles on the following subjects, that will show our readers how to make more money.

Poultry, Pigeons, Hogs, Horses, Cows, Bees, Flowers and Vegetables. But these are only a few of the subjects handled in this October issue.

"High Farming at Elmwood" by Jacob Biggle—"How to Keep Well", "Some Troublesome Insects and How to Deal With Them", "Farm Problems and How to Solve Them", are a few more articles to be found in the October issue, any one of which is worth more than the price of a single copy.

Remember all this is in a single issue and each issue seems better than the last. Every article goes straight to the point, telling you what you should know.

The Farm Journal now has over 500,000 subscribers, the greatest circulation of any farm paper in the world.

We want subscriptions for 5 years. The price of a five-year subscription is NOW seventy-five cents. This offer is good until January 1, 1909, after which the price will be one dollar.

If you subscribe now we will date your subscription from Jan. 1, 1909 and you will receive the October, November and December issues FREE. For \$1.00 you can secure a five year subscription and any one volume of the Biggle Farm Library.



You Need this Handy Farm Library

These eleven books, each an authority in its own line, are wonderful storehouses of advice, and information. Farming in any of its branches, with their aid is simplified. They are from the pen of Jacob Biggle, for the past 30 years a contributor to the Farm Journal. His long personal experience in farming, stock and poultry raising and fruit growing, supplemented with the best counsel and help of other specialists, has gone into these Books. They are like the Farm Journal itself, concise, practical, modern, comprehensive and handsome. PROFUSELY ILLUSTRATED, several with fine colored plates.

The Garden Book tells how the author made money in the business—a remarkable record.

The Orchard Book is crowded with new fruit facts and fine illustrations. By an expert.

The Berry Book is a handbook of practical pointers by famous berry growers. Fine colored plates.

The Horse Book covers the subject thoroughly, health and diseases, history, training, care. 55,000 copies sold.

The Poultry Book is tremendously popular—by far the best handbook for the farmer's or villager's flock. 6th edition.

The Cow Book, Swine Book, Health Book, Pet Book and Sheep Book are also condensed encyclopedias of information. Each Book is a handy size to slip into the pocket and consult during the day's work. They cost only 50c per volume, postpaid, \$5.00 for set of ten.

Let Us Send You a Biggle Book on Approval

Don't send us any money. Just fill out the coupon in the lower right hand corner stating which book you want and we will send it with a sample copy of the Farm Journal for your approval. If after you have looked them over carefully you don't honestly feel that a five years' subscription to the Farm Journal and one of these Biggle books is the biggest value you ever saw for *only one dollar*, send the book right back and we will return the postage you have spent.

If you think it is a good offer, send us *One Dollar*, keep the book and we will enter your subscription for the Farm Journal for five years.

Don't lose by putting it off. Your horse may get the colic. Maybe your hens are not laying as many eggs as they should. Perhaps you are going to buy some fruit trees and unless you have some reliable information on how to plant and care for them, they will fail to thrive. Then, dear reader, you will wish you had the Farm Journal and the Biggle books which will help you solve these and many other problems. Fill out the coupon and send it in today and in addition to sending you your choice of the Biggle books on approval—we will tell you how

Pub.
Farm
Journal.

Please
send me on
approval your
Biggle

Book

If satisfactory will send you \$1.00 for the book and a 5 years' subscription to the Farm Journal, otherwise I will return the book inside of 10 days.

YOU CAN SECURE THE OTHER 9
BIGGLE BOOKS FREE!

FARM JOURNAL

1003 Race Street, Philadelphia, Pa.

Name.....

Town.....

State.....

1003

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio

H. H. ROOT, Assistant Editor
A. I. ROOT, Editor Home Department

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

VOL. XXXVI

OCTOBER 1, 1908

NO. 19

STRAY STRAWS

DR. C. C. MILLER

O. O. POPPLETON may be alone in using the Long-idea hive in this country, p. 1118, but he has plenty of company in Europe.

Mr. R. BEUHNE says that in California they have introduced the eucalypti that are rapid growers, but the slow growers are the best kind for honey.

W. K. M., p. 1117, says bees are better judges of sweets than we are, and we might as well cater to their prejudices. That's to the point. Now tell us what they have shown as to their prejudices.

SMALL PLOTS of grain give better yields than plots of several acres, and it is not easy to tell why, says A. I. Root, page 1144. Is it not just possible that plants, like folks, do better for having lots of air, and that the small plot has an advantage in this respect?

A. I. ROOT, do you ever have trouble breaking up sitting hens? Here's the way my brother-in-law does it: He brings the sitting hens up to our place, where they wander about the strange premises with no thought of sitting, and after a few days' visit they are taken back home, and are all right.

J. A. CRANE, referring to Straw, p. 799, says he removed queen from colony in the morning, found cells started about mid-afternoon, when he returned queen, putting all but one brood above excluder, as described page 757, and got six fine cells. Certainly that was small interference with the laying of the queen.

THAT PICTURE of the Ebrito apiary, p. 1130, makes me think I'd rather like something of the kind covered with Virginia creeper (*Ampelopsis quinquefolia*) or grapevine. For the north, with trellis running east and west, I suppose the north row of hives should be outside the trellis and the south rows somewhat toward the center. That would keep them more in the shade all day long than to have both rows square under the trellis.

MR. PRITCHARD's plan of selecting larvæ for queen-rearing, page 1119, seems admirable. Let me add that, for the every-day honey-producer, there can hardly be any thing better than to let the bees do their own selecting, giving them newly built comb filled with eggs and young brood. At any rate, that plan works best "in this locality," and I've tried pretty thoroughly the other plans, although I don't think I selected as wisely as Mr. Pritchard.

YOU'RE RIGHT, Mr. Editor, in thinking that the plan of putting paper between hives when uniting colonies, as given by Wm. Beuglas, p. 1139, will work. I have used it lots of times in ordinary uniting, and gave the plan in print years ago—in GLEANINGS, I think. Just put a sheet of newspaper between the two stories, and the bees will do the rest. [Since you speak of it, we recall that this method of uniting colonies has been before exploited in these columns.—ED.]

F. H. CYRENIUS, p. 1135, advocates Oslerizing the old bees in the fall. The same thing was exploited considerably in the bee journals years ago—by Hosmer, wasn't it?—but nothing came of it. It is just possible that there may be some advantage in having the larger bulk of bees in the first part of winter, even if they do consume honey only to die before spring. [We shall be glad to hear from others as to whether it pays to carry the old bees through the fall and early winter.—ED.]

A QUEEN is made to lay eggs in cells covering an area as large as one's hand in perhaps an hour, on page 1119. That area will probably contain 500 cells on one side. To fill it in an hour means 12,000 eggs in 24 hours. The best layer ought hardly to be asked to lay more than 5000 eggs in that time. Yes, I have my opinion of any man who goes around picking at little things like that; but I thought some one would be sure to do it, and I'd save him the trouble of making himself disagreeable.

THE ADVICE given to that bee sister about sweet clover, p. 1145, is good, only she should be told that if the ground is soft the plants will all be dead in spring. I once sowed several rods with oats at the usual time of sowing oats. There was a beautiful stand, but the next spring not a plant was alive—every one heaved out. The ground should be *very hard*. It might be all right in soft ground if the ground was covered. Replied to one of her questions, if growth is started in fall, plants will bloom the following season.

AS TO SUGAR, I wish the discussion might continue till we know absolutely how much or how little difference there is between cane and beet for feeding bees, and then further till we know just how we may be sure we are getting cane, if cane is the better. For years the *British Bee Journal* has held most emphatically that cane sugar is the proper thing to feed bees, and beet sugar unfit. Is it not likely that it has good ground for its position? The sugar-beet industry has become an enormous affair, and I suspect most of our granulated sugar is made from beets. I know

that large dealers advertise, "We do not handle beet sugar," but I wish they'd tell us how they know they don't. [The United States neither produces nor consumes much beet sugar. Michigan is the only eastern State which cuts any figure. California, Utah, Idaho, and Colorado are large producers, but it is consumed there. We import little or none. Possibly about one-seventh of our consumption is beet sugar. England consumes vast quantities of beet sugar, more than any other country by far.—W. K. M.]

YE EDITOR wants me to tell why the bees gnawed away the splints in the combs pictured on p. 1127. If the splints were boiled in wax and used at such temperature as to be well coated, and then given to the bees at a time when they were building comb, I don't know why they should make such bad work. E. F. Atwater's plan of spooning wax over the splints may work, but I believe I'd rather paste over each splint a small strip of foundation. In that case there would be no need to wax the splints. [Do you think there is any real difference between boiling the splints in the hot wax or covering them over with a thick film of wax as described by Mr. Atwater? We should like to hear from the latter as to whether he has tried boiling the splints; and if so, whether it prevented the bees from gnawing them. Possibly your strain of bees, doctor, are not as much inclined to do this thing as some other strain.—ED.]

PARDON ME, friend A. I. Root, if I disagree with you when you object to having the stars and stripes floating over a brewery, page 1143. Why not, so long as the brewery is doing a legitimate business under the protection of that flag? On the whole, isn't it a good thing thus to proclaim that the United States government is especially interested in the brewery business? If we object to the proclamation of that fact, let's get rid of the fact. Come to think of it, we're steering pretty surely in that direction. One after another the States are going dry so rapidly that one can hardly keep track of them. See if you can tell offhand just how many. Well, there are 8—practically 9, for the election just held in Arkansas makes it morally certain that State-wide prohibition will be enacted at the meeting of legislature. Take good care of your health, Brother Root, so as to live until there shall no longer be a brewery or a brothel over which the American flag can wave.

EDITORIAL

By E. R. Root.

DEATH OF E. W. ALEXANDER.

In our issue for Aug. 15 we announced that our correspondent, Mr. E. W. Alexander, of Delanson, N. Y., so well and favorably known to our readers, had an incurable disease, and that it was only a question of days when death would relieve his sufferings. We are now pained to announce that our friend passed away on Sept. 19. He had specially requested, before he died, that Dr. D. Everett Lyon, of Rye, N. Y., another of our correspondents, should preach his funeral

sermon. Dr. Lyon knew Mr. Alexander very intimately, and has promised to furnish an obituary sketch, telling something about this large-hearted Christian man.

SENDING THE SAME MATERIAL TO TWO BEE JOURNALS.

We wish to protest most earnestly against the practice of some of our correspondents in sending precisely the same photos to two different publications at the same time. Perhaps the thought is that, if one of the papers does not accept, the other will. But a photo designed for publication should be regarded as so much original matter for one journal. Manuscript should likewise be given to only one publisher; and then, if he declines, the owner is at liberty to send it to some other publisher. If one publisher buys manuscript or photos in good faith he should have the exclusive use of them, and the seller has no moral right to accept money for them from some other publisher.

QUARANTINE ON QUEENS TO HONOLULU.

HAVING heard that a quarantine has been placed on American queens to the Hawaiian Islands, we wrote Dr. E. F. Phillips, of the Bureau of Entomology, who has recently returned from the islands. We give his letter herewith.

Dear Mr. Root:—Among the numerous letters which I am attempting to clear up I find a letter from Mr. Gates to you under date of July 25, concerning the quarantine regulations at Honolulu. By this time you have probably heard from Mr. D. L. Van Dine concerning this matter, since he wrote me that you had requested information from him on the subject.

No satisfactory quarantine is yet in force, but there will probably be a good bee-disease law passed this winter. At present all queens introduced are reported to Mr. Van Dine, and he follows them up to see if any disease breaks out. While I was over there I was asked to make recommendations for a satisfactory disease law, and a quarantine was one of those recommendations. Careless queen importation should not be allowed in a country as free from disease as Hawaii is. Then, too, most imported queens are sent to small bee-keepers, who naturally are not competent to diagnose disease. The big men have satisfactory stock, or if they do import they would take care of what they got.

Washington, D. C., Sept. 19.

E. F. PHILLIPS,
In Charge of Apiculture.

We have written Mr. Van Dine, but as yet have not heard from him. In view of the circumstances it might be best for breeders of queens to Hawaii to wait until something more definite is learned.

THE BIG NATIONAL CONVENTION AT DETROIT, OCT. 13 TO 15.

The convention of the National Bee-keepers' Association, that is to be held in Detroit, in the pavilion of the Wayne Hotel, Oct. 13 to 15, promises to be one of the biggest and most enthusiastic meetings of bee-keepers ever held in the history of the Association. We have had reports from bee-keepers all over the country who expect to be present. The editors of this journal intend to be on hand.

Detroit has always been an ideal convention city, as it is right in the heart of the best bee country, taking in Canada and some of the best sections of the United States. Rates by water are always very low, and hence it is possible for bee-keepers to get to this convention at a low rate, and comfortably. Then, moreover, Detroit has connections by trolley in every direction.

The program is given elsewhere under head of Convention Notices (see page 1225). It will be observed that there are some new and attractive features. Secretary Hutchinson has spent a great amount of time in working it up. Every thing at the present time goes to show that this will be a great convention—something that no bee-keeper within two or three hundred miles of Detroit can afford to miss.

The convention itself is to be held in the Sun Palace just back of the Wayne Hotel, and on the water's edge, away from street noises and dust. It has very often happened that our National conventions have been held in halls where it was difficult to hear the speaker, owing to the traffic on the streets below. But this year we shall have every thing quiet by ourselves.

The rates at the Wayne Hotel are \$2.50 a day, two bee-keepers in a room, provided 150 register there. There are other hotels near by, with rates ranging from \$1.25 to \$2.00 a day.

Remember the date, Oct. 13 to 15, at Detroit.

WHEN HONEY IS QUOTED ON THE MARKET, OR IS SOLD AT A DEFINITE FIGURE, DOES THAT FIGURE INCLUDE THE WEIGHT OF THE SHIPPING-CASE AT THE PRICE PER POUND?

A SMALL producer inquires, when he sells a case of sections at, say, 15 cents a pound, whether that price includes the shipping-case. In reply we would say no—at least that is the rule here. Again he asks, "If a case weighs 24 pounds does that mean the 24 sections alone weigh that, or that the case, sections, and all represent that weight?" It is a universal rule that the case is not included. Where there are very large shipments, a few representative cases may be weighed up, and an average struck of the weight of a single case. The whole shipment is then weighed, when the tariff per case, as shown by the aforesaid average, is eliminated. In some instances, where the parties are very particular, every case is weighed, and the sum of the total weights of the empty cases is extracted from the total gross weight. As a general thing, the buyer will find net weight and tare showing in two separate sets of figures on the case. If the producer is one in whom he has confidence he will be likely to accept the net weights, and render payment accordingly. If, on the other hand, the producer is a new man he will weigh up each case and its contents separately. If he finds that the net weight and the tare agree with the figures on the shipping-cases taken at random, he will likely accept the figures throughout.

In the Colorado quotations it is the rule to quote honey by the case, say \$3.00 or \$3.50, depending on the market. Each case is supposed to hold approximately a certain weight of honey—that is, all the cases in the shipment must average up such weight. But it is understood that the weight of the case is not included in the figures on the case of honey. See Colorado grading-rules on our honey-market page.

It very often happens, after the honey has been through a freight shipment, there are some breakages and leakages. The honey soaks into the wood and makes the case weigh a little more than when it starts. This must all be taken into consideration when accepting the net weight and tare of the producer.

HONEY MARKET AND PRICES; THE FOLLY OF SELLING TOO LATE.

WE made a special effort, as our readers will see by consulting the Honey Column in this issue, to get complete reports from all the big markets in the United States. They should receive the careful analysis of every producer, not only that he may determine *where* he can do best with his honey, but that he may also seek to *prevent* some conditions that have contributed to a weak market in some sections of the country.

We observe that Boston and San Francisco are offering the highest prices. It will be remembered that the crop was a failure in Maine, and light in many portions of the New England States. This will account for the Boston market being up. Similarly at San Francisco prices rule strong because the main honey-producing portions of California gave a light yield.

The market seems to be weakest in the Central Northern States. Two or three of the honey firms account for this on the ground that a good deal of Western honey was shipped in last winter at just about the close of the selling season. About this time the panic came on, and this honey was left in the hands of the dealers. It began to candy, and sales, of course, began to drag. A large portion of it was left at the time the new crop of Eastern clover came on in July and August; and much is still in those markets. This, together with a very heavy crop of white honey, was a strong factor in weakening the market in the Northern Central States. One dealer at Cincinnati reports a marked decrease in demand, while the other speaks of an improvement at that point. Cincinnati is a great market. It has low freights on account of transportation by water, and in our judgment Southern honey, which seems to gravitate easily to the Queen City, has a tendency to affect prices on white honey.

But Pittsburg seems to be an exception. Not being able to get any definite reports we sent our honey-man to look up the situation. He furnishes a statement for the Pittsburg market, signed J. A. W. Pittsburg is in the center of a large number of middle-class people—artisans and laborers. It is these people who consume honey more largely than those who are able to buy more expensive delicacies.

Another interesting feature is that the St. Louis market is weak while that of Kansas City seems quite brisk. Conditions around St. Louis are practically the same as those that apply to Cincinnati. The Philadelphia and New York markets, especially the former, seem to be fairly good. The former reports that the actual crop of honey secured was not as large as that indicated by the first reports.

Compared with last season, the Colorado market is a little weak, owing, no doubt, to the large crop of Eastern honey. This would make a shipment of alfalfa honey eastward unprofitable, even if Colorado had good crops, which it did not have. But it is expected that the Colorado market will improve, after the fruit has been disposed of.

There is one important fact on which we wish to place special emphasis—namely, the folly of making large shipments of honey to any market after the holidays, or, rather we should say, of

selling too late. There is no reason in the world why honey could not be sold in October, November, and early in December. A year ago, for example, all the markets of the East were bare of comb honey. Dealers could not get it for love nor money, in spite of repeated calls for it; but along about the holidays some of the Western producers began to send in their cars of honey, and by the time they reached the East the panic came on, and prices went to the bad. There can be no question but that those late shipments of Western honey last winter are largely responsible for the weakened market in the Central Northern States, where most of this honey was dumped. It was so cold that some of it candied on the way, and then, too, it was too cold for the dealer to ship again, even if there had been a demand for it. While the producers possibly got their money, the majority of them this year will have to take a cent or two less per pound for their honey and for their folly. If they had shipped this honey a month earlier, when they could have done it, and when there was a strong demand for it, it would have sold almost instantly, and the result would have been a clean market ready for fresh goods.

Except, perhaps, in the Central States we should say that the market was stable. Producers would do well not to hold their honey too long. We would especially urge this this year, that the honey be sold around home to grocers and consumers direct. Better peddle some of it, bottle it—do any thing rather than to send to a weak market and make it weaker.

TIMELY HINTS ON FALL UNITING.

A SUBSCRIBER wishes us to give full particulars of how to unite weak colonies at this time of the year. As we have had other inquiries of like nature they will take a little space to cover the ground.

If we put two separate lots of bees together that were located on stands remote from each other in the same yard, there will be more or less of returning bees to the old stand. These will be practically the old ones. As they will die along about midwinter, their loss may not be considered very great. But some, and perhaps all, of these old bees may be made to stay in their new quarters. If they be put back a couple of times, the great majority of them will stay put; but this involves considerable labor.

In view of the fact that bees will go back to their old stands, Mr. Doolittle has advised uniting in the brood form early in September. This will leave the hive or the stand to be vacated in late fall with a few old bees. These may be allowed to die, for it may be said they will not be worth much to the strength of the colony.

A very good way to unite, and avoid all loss of returning, is to do so at the very time of putting them in the cellar. For example, A and B are both too weak to winter outdoors. We will place the two together in one hive, making a brood-nest out of the best combs selected from the two hives, leaving the other combs for reserve feeding in the spring. As soon as the two families are placed in one hive they should be put in the cellar immediately, and left there till spring.

Another way to unite without bees returning is to take two weak colonies, one from one out-yard and the other from another, and put them

together at either one of the outyards, or at the home yard. There will be, of course, no returning; for when bees are taken away from their usual environments for, say, a radius of a mile flight, they will stay where they are put.

But suppose there is no outyard, and it is desired that there be no returning. One may shake into an empty box, or, better, a box having wire-cloth sides, bees from, say, three or four nuclei, and then put the box down cellar. The more different lots of bees one can get in the mix-up, the better. After they have been down cellar for 24 hours, they may be put anywhere on a permanent stand, and there will be very few of them that will go back. But this again involves considerable work.

Thus far we have said nothing about the queens and the possible fighting on the part of the united bees. As to the queens, if the apiarist is not particular the bees will take care of that, leaving but one queen. We said the *bees*; for we do not know whether the bees do the eliminating or the queens fight it out, leaving the victor the mother of the colony. But certain it is, nature seems to take care of it if the apiarist does not take a hand in it.

But suppose there is a choice of queens (and there usually is). He will then kill the least desirable one and introduce the other in an introducing-cage. It may not be necessary to cage; but as a matter of precaution we would advise it.

The queen problem will be nicely taken care of if one of the lots of bees is queenless and the other has a queen. In that case, put the separate sets of combs with the bees together; and if there be no fighting, the queen will be accepted. Another good plan is to put one family up stairs and the other below. But do not mingle the combs at the time of uniting.

But how about the bees fighting when put together? This depends much on the season of the year, the strain of bees, or whether they are well supplied with stores. With ordinary gentle Italians there will be little or no fighting in uniting. But if both strains be hybrids, Cyprians, or other cross strains, there will probably be some trouble; in such cases, feed before uniting. We had two lots of bees united that were entirely annihilated by one fighting the other. It is then always advisable to use smoke. If the two families to be united are separated by a wire-cloth screen for a day or two, there will probably be no battle; but when the bees get to stinging each other to death, the only thing to do is to use smoke, sometimes putting a little tobacco in the smoker.

If the uniting be deferred until quite cool weather there is much less trouble from fighting than if the process takes place early in September.

Where one is running for queen-rearing, and he has reached the close of the season with a lot of weak colonies, it is well to anticipate the work of uniting by putting the hives in pairs. All that is necessary then is to take away one of the hives; and after that, put both lots of bees in one. The hive that contains the two united forces is placed about half way between where the hives formerly stood. This will then catch the flying bees of both hives. If the hives be placed in groups of three, the three families are all placed in the center hive when the other two are removed entirely.

GLEANINGS FROM THE PACIFIC COAST

By PROF. A. J. COOK.

POULTRY AND BEES.

There are few inquiries that come to the experienced bee-keeper more frequently than this: "What other occupation can one combine profitably with that of bee-keeping?" While the concentration of effort is wise in all our plans, work, and efforts, and while the specialist is most likely to make a shining success of his work, yet in case of bee-keeping, with its numerous off-years, it is wise to find some supplemental pursuit that will enable one to keep the pocketbook occupied in these same off-years. Is not poultry culture the one best suited to this need of all our rural pursuits? If one has a special leaning toward fruit-growing, then that may well be considered; but poultry culture is interesting, profitable, and there is always sure to be a demand for the product of the chicken-fancier. The same habits of punctuality, alertness, push, that make the successful bee-keeper are just what are demanded to win success in the care and management of poultry. I have been successful with both bees and poultry, and I am persuaded that no other line of work will prove better suited to the average bee-keeper than the care of poultry.

AN UP-TO-DATE POULTRY-BOOK.

The above is suggested by the fresh reading of Brigham's Progressive Poultry Culture, which is just from the press. It is published by the Torch Press, Cedar Rapids, Iowa. It is octavo, 293 pages, and thoroughly illustrated. The price is \$1.50. The writer is not only an expert with poultry, but has a thorough college education, and so has breadth of view, and is doubly well prepared to give his readers the very best that is known regarding this interesting pursuit. He shows his wisdom by suggesting that a thorough college education is desirable in any walk of life, and so the one who is to breed and rear fowls will succeed better if he is thoroughly versed in the several lines of study required in our best colleges.

I am sure that Mr. Brigham is correct in this position. Were I a ditcher I should wish the best education, as that would enable me to dig better ditches; but, more, I should see more in the digging than the ditch. I believe that the great advance just before us is the more general education of the masses. This will tend toward equality; and the more that people are alike in opportunity and ability, the more of fellowship and happiness will be secured.

This volume is by a thorough scientist, and so all the instruction and suggestion is scientific. The author, as a teacher in one of the leading agricultural colleges, is the better prepared to treat the several questions in a scientific manner.

Such questions as care, management, houses, runs, diseases, vermin, food, and breeds are thoroughly and plainly discussed. The author has no pet breed to thrust before his readers, but gives the merits of the several breeds, and leaves the reader to decide which it shall be. There are

good illustrations of the several leading breeds, with the merits of each judiciously portrayed. No experienced fancier can read what is said about roup without feeling that he is receiving advice from a real authority. What pleases me very much is the admirable index, as one is able to find at once just what he may need in any emergency. I am sure that any one who wishes to add to his pursuit of bee-keeping that of chicken-raising, or any one who wishes the latest and best in breeding and caring for fowls, will make no mistake in securing and studying this latest book on the subject.

ROOM AT THE TOP.

I heard a good amendment to the above the other day. There is always room at the top, and the elevator is now running. It is absolutely true that there is always good picking at the top. The crying need of our time is for men of thorough preparation—men who can do things. To be able to do a thing a little better than any one else gives one wonderful independence; but to acquire this proud position requires the hardest of effort. I know a young man who was without means fifteen years ago, when I came here. He is now worth near or quite half a million. The whole secret of the matter is, that he has spared no effort to do the very best. He had a great responsibility placed upon him, and he shouldered it and worked so diligently and thoughtfully that every move was in the line of success. He soon was indispensable; and lest the great corporation that employed him might lose his invaluable care and service he was given a large share of the business on condition that he would stick by for a series of years. He has push, acumen, and integrity. No wonder he has pushed rapidly to the top. That is a trio that will land any one possessing them at the very front. We have many students who are paying their own way entirely in the college. Some of these have done more than pay all their expenses, and yet have led in their classes. It requires no very great foresight to see where these young people will bring up. I wish to add that, in more than one case, these parties are ladies. Does it not make one proud of his kind and country to know that a girl all unaided will reach a first place in college, graduating in the lead of her class, and that our great country makes such achievement possible?

PEAR-BLIGHT, ONCE MORE.

Our readers will remember that pear-blight a few years ago broke out in the orchards of Central and Northern California, and worked havoc. It will also be remembered that serious complaint was made regarding the bees and the part they were taking in this mischief. GLEANINGS urged rightly, that, while bees did aid in spreading this dread disease, they were in no wise necessary to the dispersion, and that without bees the havoc would be as great. The disease ran riot, and the bees remained undisturbed. I am glad to report that the malady is much less this year than on previous years. The one remedy that has been applied with more or less thoroughness is severe pruning of all blighted branches, cutting well back from the wilt, and making free use of germicides as the cutting was being done. The

lessening of the disease this year can not be wholly explained by the application of these remedial measures, but it would seem that either the plague had run its course or else some enemy had seized hold of the blight-germs and was destroying them. Let us hope that this last is the case, and wish all success to the blight-killer. Loquats a few years ago were killed about here by something very much like pear-blight, but now are sound, vigorous, and healthy. It will not be the first time that blights have seemed to die out without any action on the part of man to destroy them.

NOTES FROM CANADA

By R. F. HOLTERMANN.

SECTIONAL CASES FOR WINTER AND SPRING.

At the fruit, flower, and honey show in Toronto, last winter, Mr. H. G. Sibbald, of Claude, Ontario, one of the six appointed as foul-brood inspectors, exhibited a sectional cold-weather case which, in my estimation, has a very decided advantage over any hitherto used. Especially is this sectional feature a gain in spring management.

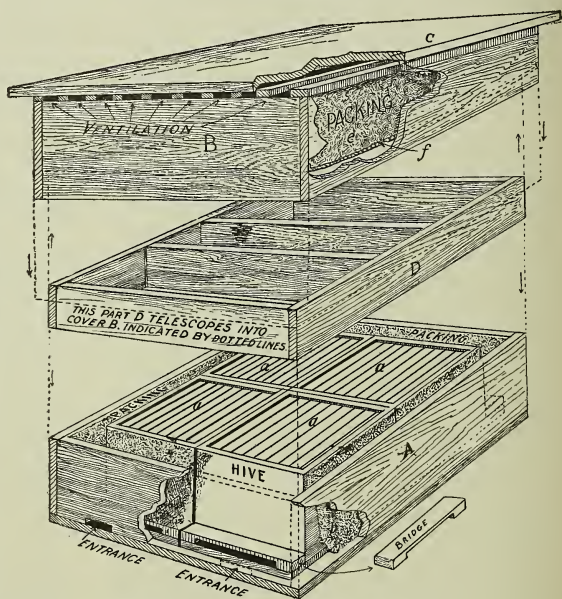
A number of successful bee-keepers of Ontario are using with marked success a case holding four colonies, two placed side by side, and the pairs with backs together. The packing is underneath, at the sides of the group and over the top. This case, I believe, was first designed by Mr. Jacob Alpaugh, Eden, Ont., one of Canada's closest bee investigators. Mr. Sibbald states, "The advantage over single cases for packing is the economy of heat and expense. One case holds three hives, and costs less than half as much as four single cases; and four colonies packed together create and retain the heat and comfort not enjoyed in an individual case." The illustration shows one of the cases, the sectional feature of which is the invention of Mr. Sibbald. The lower section, A, holds the four hives *a, a, a, a*, having the usual packing underneath and above them. The wall and packing of this section is high enough to be on a level with the top of the brood-chamber of the four hives. The top section, B, consists of not only the cover, C, but the remainder of the side of the case, D, and the packing, *e*, which is held in the cover by means of a piece of cotton or burlap, *f*, stretched across the bottom. Between this cloth and the roof the packing lies.

To examine colonies in early spring as to stores, etc., it is necessary only to remove the cover, or upper section, to expose the group of four hives. The cover, the packing above the level of the hive, and the side wall of the outer case, are all taken away at one operation. This convenience will appeal to those who have had to deal with the examination of colonies packed in outer cases. It saves an immense amount of time, and it pre-

vents the packing from dropping into the hive and getting into the way of the operator. Mr. Sibbald says that the use of this case reduces the time for the fall and spring work to a minimum.

THE ASPINWALL, ENTRANCE.

At one of the Brant district conventions Mr. L. A. Aspinwall, who has wintered his bees and brought them through the spring with such uniform success, described a device he has for an entrance which is unique, and its features should appeal to the practical bee-keeper during winter and spring. It will be seen in the drawing that the outer entrance is not on a level with the entrance of the inner hive. The object of this is to break the wind and to prevent the rays of light from inciting the bees to fly at a time when they should not. During the last two winters Mr. Aspinwall has had the inside entrance two inches wide. Like Mr. Alpaugh he wants no alighting-board as a part of the bottom-board during the time when the entrance may become clogged with dead bees. The bottom-board, therefore, does not project beyond the front of the hive. The object of this is to reduce the entrance to a

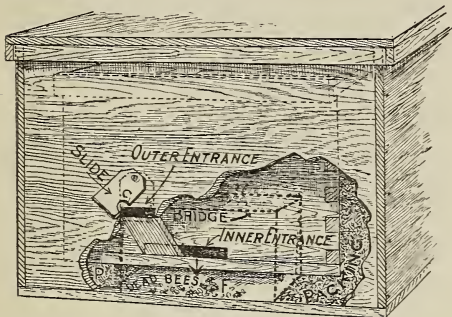


SIBBALD'S WINTER CASE HOLDING FOUR COVERS.

minimum, diminishing the amount of heat the bees have to generate during cold and windy weather, thus saving honey and the vitality of the bee, and yet preventing the entrance from becoming clogged.

By means of this device, the bees dying and making for the entrance by their own efforts, or bees dead and dragged forward by their living sisters, drop down into the "filth-box," as indicated by the arrow, as soon as outside of the hive. In Mr. Aspinwall's device the runway from the inner to the outer entrance is half the width of the $2\frac{1}{2}$ -inch entrance to the hive. Up this the

bees must go to get to the outside. The other half of the entrance is to allow the dead bees to fall down into the filth-box as they are dragged to the front of the hive. The entrance being so well protected, the bees have no difficulty in reaching the front of the hive.



THE ASPINWALL NON-CLOGGING WINTER ENTRANCE.

Over the outer entrance is a slide which may be opened or shut according to weather. During unfavorable weather the opening may be left only $\frac{1}{2} \times \frac{1}{2}$ inch. It appears to me that Mr. Aspinwall justly claims that this plan secures an unclogged entrance, yet reduces the opening to a minimum. With the ordinary entrance more space is allowed to prevent clogging.



THE NATIONAL EXHIBITION, TORONTO.

The National Exhibition at Toronto, in its apian department, presents no very special features this year. Mr. D. Anguish has a very fine display of comb honey, put up in a style a little different from the ordinary. Messrs. Grainger, Arthur, and Geo. Laing also have fine exhibits, making an attractive exhibit of honey at Toronto, and well representing Ontario honey. Prizes are fairly well divided. Mrs. D. Anguish also shows comb honey.



THE NATIONAL CONVENTION AT DETROIT.

If present interest among Canadian bee-keepers is any guide, there will be the largest turnout of Canadian bee-keepers at the Detroit meeting that has ever been at a convention in the United States. Secretary Hutchinson has worked hard to make a success of the meeting, and Pres. G. E. Hilton will make a good presiding officer. The writer is looking forward to being at the convention.



WINTER STORES.

This is the time when winter stores should be well looked after. Mere weight of hive is not altogether satisfactory. The wood may be unusually heavy, although as a rule this is somewhat uniform. Then the stock may have been queenless for an abnormal length of time, and the combs may contain a lot of bee-bread or pollen. This weighs even more than honey. Again, the combs may be old. Sometimes the colonies that have had the best queens keep the brood-chamber well filled with brood to the exclusion of the storage of honey, and starve, owing to the carelessness of the bee-keeper. This is not a

proper selection. It is, in fact, the extermination of the fittest instead of the survival. Let us see that we are not guilty of this folly. Again, the weather has been favorable to the secretion of honey-dew, as it has been dry and the nights cool. Bees have been working early mornings on the oak. I intend to provide every colony with not less than 15 to 20 lbs. of sugar syrup for stores.

CONVERSATIONS WITH DOOLITTLE

FINISHING UP THE SEASON; WHAT TO DO WITH UNFINISHED SECTIONS.

"Smith wants to know if Doolittle will be offended if he asks him to be a little more explicit about finishing up the season than he was in that conversation given in GLEANINGS a few numbers back."

"Oh, no! Was there any thing you did not understand?"

"I got somewhat mixed on some of the matter, and there were some things which I wanted to know about that you did not touch upon at all, and one or two items that were not applicable to my locality."

"Perhaps I did not take into account, as much as I ought, that different localities require different management, and that different seasons require different methods to meet the varied conditions as they come to the apiarist year by year."

"I think these things are not taken into consideration by the voluminous writers as much as they should be. In other words, it seems to be hard work for such writers as Doolittle, Dr. Miller, and others to get much beyond a circuit of about 100 miles from their own apiaries."

"Thank you. But are you sure that you would do better if you tried to write up my locality, knowing, as I do, that you are living more than 1000 miles away?"

"Perhaps not. But let us try again. Supposing—"

"Yes, supposing, then, that the season is nearing its close, and that each hive has an average of two supers of sections. This means, of course, that some have only one, others may have three or four, while two will be that of the majority, the sections being in all stages of completion."

"Now you are talking something as you should. I want to know just how I can get all these completed, and in the most economical way, as I desire to accomplish such completion as far as possible."

"There is quite an uncertainty along this line, as climatic conditions—cold, wind, clouds, and sunshine—have very much to do with these things. Then very much must depend upon the skill, judgment, and experience of the bee-keeper. I consider it good management to give the bees as nearly as possible the amount of room in the most available shape that they need at all times in which to store honey day by day as it comes in."

"But would it not be better to crowd them at this time of the year, so that they would finish up those sections commenced in, quicker than otherwise would be done?"

"No amount of crowding of the super room will induce the bees to seal over the combs before the honey is ripened to their liking. The raw nectar must be evaporated, or dried out, if you please—ripened and graded, so to speak, in that wonderful manner in which the bees know how to take the nectar product of to-day and make the finished product of to-morrow or next day."

"What do you mean by *graded*? You do not think that each bee-load of raw nectar is graded in accordance with the flowers such loads come from?"

"No, not that. As it is evaporated it is graded in accordance with its thickness or richness, inspected by a company of experts, and sealed up when it arrives at perfection, at the close of the honey-flow, when the wax secretion stops, with quite a few cells of unsealed honey in the last sections worked on."

"But why not feed the bees extracted honey to finish up such sections which are left unfinished?"

"Such unfinished sections have been a great temptation for various experiments by way of what has been called 'feeding back' during the past; but I must say, and that from considerable experience, that such feeding of extracted honey will most likely be unsatisfactory."

"I am sorry to hear that, for I had thought this might be made to pay."

"Some claim it will pay; but the reports that come to me from the rank and file, as well as my own experiments, convince me that the majority of those who have tried it pronounce the same unsatisfactory when every thing is taken into consideration."

"How do you remove the supers at the end of the season?"

"By the use of bee-escapes."

"Do these work as well at this time of the year as they do in midsummer?"

"If it is cold at the time of putting them on, and it continues cold, the bees will sometimes fail to go out of the supers till it becomes warm again; but as a rule I have no trouble along this line."

"How about robbers in taking off honey with the escapes?"

"There is no trouble whatever from this source if there is no crack about the supers large enough to admit a bee. In fact, the overcoming of the robbing tendency at this time of the year is one of the *great big* items which come to the apiarists of the world through the invention of the perfected bee-escape."

"What is to be done with these unfinished sections when taken from the hives?"

"As soon after taking it from the hives as possible the honey should be graded; and the unfinished sections that are not marketable should be extracted, cleaned by the bees, and stored where they can be protected until the next season, when they can be profitably used again as bait-combs."

"Would it not be more profitable to allow the bees to carry the honey out of the sections, or rob them, as it is termed, and thus save the labor of extracting them?"

"I hardly think so. The extracted honey more than pays for the work; and unless the robbing work is done very slowly by the bees they are apt to tear the combs quite badly."

"But does not the extracting break the comb,

which is always tender and brittle at this time of the year?"

"Not if properly done."

"Tell me how to extract properly."

"Several wide frames should be provided, into which the unfinished sections are placed as we come across them in grading the honey. As these are filled they are set on shelves near the top of the room in which we work, and where we can have a fire when needed. When we have a lot ready, or are through with all of our grading for the season, a fire is built and allowed to burn long enough to keep the top of the room at from 85 to 95 degrees for four or five hours, at the end of which we can extract the honey from those sections as easily and as safely as though it were midsummer with the mercury at the same height."

"If I remember rightly I have read in some of your writings that, where sections are two-thirds or more finished, or the honey that much capped over, you ship them to market."

"Yes, to the *New York* market."

"Where such are shipped, do you not have to send them off as soon as possible after they are off the hive?"

"I do not. Why should any one do so?"

"Because such unsealed honey, with me, becomes thin, and drips from the cells when handling if I do not get it ready for market as soon as off the hives. This is a very undesirable condition of things, as I have experienced to my sorrow."

"This is because the room in which you store your honey is cold or damp, or both. Where do you store your honey?"

"In a room over the cellar on the north side of the house. I supposed it should be kept in a cool place."

"This is like the old idea of our fathers, who thought there was no place suitable for storing honey except in the cellar. The very best of sealed honey will become thin and watery after a while if left in such a room as you are using. A warm dry room is the only suitable place in which to store honey; for if the room is such that the temperature will stay day and night at from 80 to 95 degrees, all honey in unsealed cells will become so ripe and thick that at the end of two or three weeks the sections can be handled as you please without one single drop stirring in any cell."

GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON

BEE-KEEPING IN BRITISH GUIANA.

Away down near the equator, at Onderneeming, there is a reform school for boys where bee-keeping is taught. Last year they had 11 hives in working order, from which the crop was 1140 lbs. This was sold for \$177. The man in charge of that school deserves a gold medal, for I am safe in saying no reform school in all America can come anywhere near his record. Incidentally it shows what can be done in tropical countries when bee-keeping is properly prosecuted.

ANOTHER BUBBLE BURST.

That famous bee journal, *L'Apiculteur*, of Paris, did not fail to notice the editorial in GLEANINGS, giving the editor's experience with Caucasians. It seems to have furnished our French contemporary with a good deal of satisfaction if not downright amusement. At any rate it closes its article with the remark, "Well! another soap-bubble burst."



THE PURITY OF FOUNDATION.

The Abbe Pincot, a well-known contributor to French bee-journals, has lately given way to rather violent attacks on the purity of American comb foundation. His comments may be justly termed "fierce." Mr. Dadant champions the American side of the case. To put it mildly, the Abbe Pincot is "talking through his hat." His idea, apparently, is to boom the Rietsche press, but his way of doing it is unfortunate.



PLURALITY OF QUEENS.

The visit of M. Sevalle (secretary of the French Bee-keepers' Association) to England has resulted in a discussion as to the feasibility of retaining more than one queen in a hive. M. Sevalle got inoculated with the plurality germ while in London at the Franco-British conference of bee-keepers. The contagion caught on in France, and no doubt the arguments will wax hot within the next few months. Thus far the discussion has been fair and open-minded.



EUROPEAN BEES FOR ANNAM.

At a meeting of the Central Society of Apiculture in Paris some one called attention to the fact that three hives of bees had been safely sent to Hue, the famous port of Annam (French Indo-China). They were 33 days on the journey, which is rather remarkable, because the voyage was on tropic seas all the way, and the bees were closely confined the whole time, and yet were in extra-good condition on arrival. It remains to be seen, however, whether European bees can compete with *Apis Indica* in so exclusively a tropic country as Annam. I imagine bees from Madagascar or Reunion would fare better.



HONEY VINEGAR.

The bee-keepers of the West are under lasting obligations to the Arizona agricultural experiment stations for more information about the manufacture of honey vinegar. This is contained in their new bulletin, No. 57, dated June 20, at Tucson. These instructions form a supplement to a former bulletin known as "Timely Hint No. 48," which gave full instructions by the station chemist, Prof. A. E. Vinson, Ph. D. We believe this bulletin is still in print, and may be obtained from the station. Prof. Vinson shows that bee-keepers use up too much honey, as a rule, when they make vinegar. It is wasted in various ways. He also notes that honey makes excellent cider, and it is cider first and vinegar afterward. The ancient bee-keepers were well aware of this fact, and made light wines from honey. In the western country, vinegar is high-priced and inferior (it is made from acetic acid), and there ought to be opportunities

in this connection. In the West Indies vinegar is high-priced and inferior, and there are probably other places where this is true. By donating the information contained in these two bulletins the Arizona station has conferred a benefit on bee-keeping. Thanks.



THE LUMBER COMBINE.

The Attorney-General of the United States has decided to oppose the chartering or organization of a gigantic combine financed at \$300,000,000, to control the lumber trade of the South. The idea of this combine arose out of the proposal for a great forest reserve in the South to be known as the Appalachian Forest Reserve. It was killed in the committee stage in the last Congress, on account of legal objections, but is very likely to be revived again in a new form. A government forest reserve would be different from a lumber combine. In the former the bee-keepers would stand a chance; in the latter, none at all. It would be the greatest bee-preserve in the world.



SUNFLOWERS IN OHIO.

A goodly number of the farmers in this section have small patches of sunflowers in connection with their corn. Probably in all cases it is planted for the benefit of the poultry, for it is a splendid feed for that purpose. To a great extent it forms a substitute for meat when fed to chickens and turkeys, on account of its high protein content and oily character. The oil soon shows its value in the beautiful sheen of the poultry fed on it. When preparing birds for exhibition I used hemp seed to get a luster; but sunflower seed answers just as well, or perhaps better. It requires rich soil for successful culture; but the chicken-pen will furnish that. In combination with chickens and bees, sunflowers are very valuable, more particularly if alfalfa is also grown for hen feed, which is not often. Some doubt the value of sunflowers for honey; but the nectaries of the flowers are very prominent. I should like to keep bees near a few hundred acres of sunflowers properly cultivated on rich soil. It looks now as if more would be grown in the future.



THE HONEY-PALM.

In the September number of *The Guide to Nature* there is an excellent account of how large trees are successfully moved in California, and in connection therewith are some excellent engravings to illustrate the text. These show two very bulky "wine-palms" being moved by special apparatus. These so-called "wine-palms" are simply our old friend the Chilean "honey-palm" of other days. Its scientific appellation is *Jubaea spectabilis*. The trunks of these palms are thick-set, and some in their circumference resemble hogsheds or large barrels. When cut down, one of these trunks will produce as much as 100 gallons of "honey" or "molasses." I suppose that, if the juice is rightly handled, the product will be termed "honey;" on the other hand, if rather poorly prepared it is "molasses." The blossoms are said to be rich in nectar, which is very likely, as the bloom of all the other sugar-producing palms is valuable for bees. Ta-

ken as a whole, the honey-palm is a very valuable tree. Great numbers have been ruthlessly destroyed by the Chileans. Californians ought to prize this palm.

DEATH OF MONSIEUR GIARD.

L'Apiculteur, in its September number, announces the death, on the 8th of August, of M. Giard, President of the Central Society of Bee-keepers in France. Note what kind of men the French bee-keepers select for a leader. He was formerly professor of natural history and zoology in the faculty of sciences at Lille. Later, from 1882 to 1886, he represented Valenciennes in the Chamber of Deputies. Latterly he occupied a chair in the Paris Faculty of Sciences. He was also a member of the city council of Paris, and a prominent member of the French Association for the Advancement of Science. He was 62 years of age. Such a man adds weight to a society.

DR. WILEY HONORED.

Critics of our pure-food laws prophesied, when the glucose decision was rendered, that Dr. Wiley was "down and out." This does not seem to be the case, however, for he has just been appointed president of the first international congress for the repression of adulterations of alimentary and pharmaceutical products. The congress was called at Geneva, Switzerland, on September 8, the principal nations of the world participating in the event. The congress arose out of a suggestion made by Dr. Wiley to the government of France; and Switzerland, a neutral nation, was selected to call the congress together. Its purpose is to establish uniform standards for foods and drugs for the leading civilized nations. Uncivilized nations do not require food laws.

ANALYSIS OF MEAT EXTRACTS.

Bulletin No. 114 of the Bureau of Chemistry, United States Department of Agriculture, resembles very much the honey bulletin gotten out by the same bureau some time ago. The subject-matter relates to "Meat extracts and similar preparations." The object of the investigation to which it relates was to discover just how valuable meat extracts are. There is a great variation in the analysis of the various brands, but it is clearly evident that their real value is very small. Good lean meat has about double the nutritive value of an average brand. This is contrary to the general impression. Most people "imagine" beef extract to be extremely rich in nourishment. According to this bulletin it isn't. Some of the best authorities cited state that the general effect of these extracts is poisonous; others say they are sometimes injurious, and some think they are beneficial as condiments. The general consensus of opinion among these eminent authorities is decidedly adverse. This ought to be known by all. If the American people understood the contents of this book, the sale of meat extracts would be small. It is necessarily very technical, but it shows the Bureau is doing good work.

GENERAL CORRESPONDENCE

THE HONEY RESOURCES OF MICHIGAN.

What the Bee-keepers of the Lower Half of the State have to Depend on for Surplus Honey; the Influence of Weather Conditions on the Flow.

BY E. D. TOWNSEND.

There appear to be two distinct soils in Michigan that are especially adapted to the wild red raspberry, the famous white-honey yielder of Northern Michigan. One is the southern two-thirds of Lower Michigan, which is now a rich farming country. It so happened that this part of the State was cleared off and made into farms before much was known of the value of the wild red raspberry as a honey-producer, and the raspberry honey that was produced in the lower part of the State was mixed with and went for clover honey, many not knowing it from pure clover, when quite a portion of it might have been wild red raspberry.

This lower section of our State is now the old well-settled farming country, and, of course, the wild red raspberry is a thing of the past. When the country was new, and the farms were being cleared off, there were many waste places around stumps, etc., where the raspberry thrived; but this was before there was much of an awakening along the bee-keeping line, so I do not suppose there was any great amount of this honey secured.

One bee-keeper, however, Mr. Denis Gardner, was an exception to the general rule, for he was a little more in advance of his time than the rest of us. He was located with his bees in the southwest corner of Gratiot Co. This was about thirty years ago, when the county was new, and a few small farms were being cleared off. During a dry season all the adjacent woodland was burned over, and in three or four years there came up on this burned-over district a dense growth of the wild red raspberry. Mr. Gardner was there with his bees, and he reaped a fine harvest of honey. My bee-yard at the time was located some 15 miles south of Mr. Gardner's, in Clinton Co., where the fire did not burn hard enough to kill the timber. Then my yard was not established early enough (1876) to take advantage of this flow, even had I had the bees and experience to take advantage of it.

Mr. Gardner had both the experience and the bees. He produced the very finest comb honey, which came in with a rush during just the kind of flow for the best comb honey. I realize now, but could not grasp the idea then, that he had the knack of getting his bees through the winter and spring in good condition for this honey-flow, which came on early in June. He would have honey on the market at about the time my bees had but nicely commenced in the sections. The honey was of a pinkish color, but of a fine flavor; and knowing what I now do of willowherb I'm satisfied that it was of a mixture of clover, willowherb, and raspberry. This raspberry honey, the

production of the black rich soil, was of an amber color (although of good flavor), unlike the wild red raspberry further north, on the light sandy soil, where the nearly water-white red-raspberry honey of to-day is produced. The amber raspberry honey, when mixed with the white, gave a natural blend that was superb, both as to color and flavor.

Another man in the field about Mr. Gardner's time was Mr. Hiram Roop, of Carson City, Mich. Mr. Roop's bee-yard was located some 15 miles southwest of the Gardner bees, in Montcalm Co. This was before there was much known about out-yards, and Mr. Roop kept his bees all in one place until he had 150 to 175 colonies in his home yard. It was one of those early "bumper seasons" that he had the distinction of selling \$3000 worth of honey from this one yard, in one season—a record probably never beaten in the State.

At the present time this lower part of Michigan has three main sources of surplus honey—white and alsike clover, and basswood. While there is some buckwheat sown in this territory, I do not include it in the list as a surplus-honey producer, for on the rich soil of Southern Michigan it rarely produces any surplus; and when it does I think it would be when it is sown on a rather poor quality of sandy soil.

Basswood is the most unreliable of the three sources of white honey mentioned above. In the first place, the wood-lots on the farms are getting smaller each year, so that there are but few locations left in Southern Michigan where there is enough basswood timber left to support an apiary of 100 colonies of bees and produce a surplus, except in very favorable years. Our basswood yields only every second year, and but sparingly, even then. Fruit-trees bloom profusely nearly every year, but there is very much less fruit each alternate year. It would seem that the trees do so much one year that they need the next for recuperation.

Basswood is the same in this State; but, unlike fruit, it blossoms only every alternate year to the extent necessary to produce a surplus crop of honey. With bloom sufficient for surplus honey every second year, a crop of honey may be secured provided there is any basswood timber in reach of the bees, and providing weather conditions are favorable. I have seen a dashing rain-storm cut off the basswood flow when but half over. One of these washing showers seems not only to stop the honey-flow but to pound the delicate blossoms so that they turn black. The ideal time for flowers to secrete nectar is during a rainy season when no rain falls. This condition of the weather is not essential in all cases, for some of the best flows of honey I ever had from clover came when it rained nearly every day—when the bees had to do their work between showers. They made up lost time because the damp weather kept the clover in bloom for a longer period.

I am indebted to Mr. O. H. Townsend, Otsego, Mich., for the idea (which I have since verified) that, when a drouth comes during the middle of a clover-flow, and we are wishing for rain, this is the time of all times when we do not want rain, for this partially dried-up clover would be washed to such an extent as to stop the secretion

of honey for the year, or until a new crop of clover is grown. On the other hand, if there is no rain at this time the flow may last several days before it stops entirely.

White clover is more certain than basswood, as a honey-yielder, because it is not quite so sensitive to the weather conditions; and if there is a good stand of clover in the fall that is well protected in winter with a good covering of snow, we may, with fair weather, expect a honey-yield from white clover.

There is one clover that the Michigan bee-keeper can bank on, and that is alsike; and I think I can safely say that it is worth all the other sources of honey in the southern two-thirds of Lower Michigan put together. The bee-keepers in these southern counties are fortunate if they are in an alsike-clover location.

The ideal alsike location for a bee-yard is one where the clover is grown for the seed. In such a place the two red clovers are grown for seed also, especially the mammoth clover, which is a surplus-yielder some seasons. A soil most favorable for the production of clover seed is a very heavy clay, because the stalks do not grow so large, and more of the plant energy goes into the seed. On the rich loamy soil the tops are too large.

So far I have said but little in regard to the several minor sources of honey, such as the willow, elm, hard and soft maple, etc. These furnish honey and pollen during April, which is a great help to the bees in their breeding, since they are in bloom nearly or quite up to the fruit-bloom in May. The fruit-bloom in the fore part of May is the most important of all the natural spring stimulants; and if the weather is favorable, and the bees strong, one may expect them to put into the hive some honey in addition to what they need for their daily use. It so happens in late years that the weather is usually so unfavorable that the bees can not fly during this period; but, taking it all in all, this little honey the bees do get during the spring months helps wonderfully in stimulating the bees to breed up and get strong for the main honey-flow in June.

In some locations there are a few asters that may help to fill out the last end of the season; for in those locations where they yield, the flow lasts clear to the time of the frosts in September or the first of October.

In Sanilac Co. large quantities of this aster honey are secured some years; but with such food the bees nearly all die during the next winter, so it is a question whether the aster should be called a good honey-plant from the bee-keeper's standpoint.

Remus, Mich.

WINTERING BEES IN A COLD AND DAMP CELLAR.

A Properly Ventilated Bee-room in a Cold Cellar Made with Building-paper.

BY GEO. W. BABCOCK.

It may be as gratifying to some of your readers as it has been for me to be able to winter bees in an ordinary damp cold cellar under con-

ditions which are admirably adapted to the requirements for success.

Our cellar is much larger than required for my colonies, and since the temperature often remains but a few degrees above freezing for weeks at a time, I built, out of building-paper, a center room (in the center, by reason of its being less affected by the outside temperature), having only a framework to fasten the paper on—one thickness of good quality, red or brown building-paper being used, fastened by lath nailed around the edges of the paper, each strip of paper overlapping the adjoining strip, and thus making a practically air-tight room, care being taken not to puncture or tear the paper in putting it on.

Now, my method of getting the right temperature, and dry, warm, and pure air circulating within this paper room, during the entire winter, is the unique part, and is accomplished by an inlet and an outlet ventilating flue, one connected with the chimney in the house, the other with a room above the cellar. These air-passages I made of paper for the purpose of experiment, as large in diameter as the paper would allow. The inlet was long enough to reach from the floor of the bee-room nearly to the ceiling of the room above. The outlet was connected with the chimney, and it created the draft, causing the warm dry air in the top of the room above to pass downward through the inlet tube nearly to the floor of the bee-room in the cellar, displacing the cellar air which passed upward through the outlet tube to the chimney. The connections were as nearly air-tight as could be made by the lath cleating. The circulation would probably be stronger if the inlet-tube were left out and the air admitted to the bee-room direct through an opening in the floor of the room above; but such a plan would raise the temperature in the bee-room but two or three degrees, while with the tube extending nearly to the ceiling the proper temperature is obtained. The circulation was barely perceptible, yet adequate for the purpose.

There were three angles in the tubing, and, though constructed of cheap material, these were not made without some difficulty; but the cost covering the running expense is practically of no account. I could not observe that we burned a pound more coal, nor did the room seem in any wise affected by this connection with the cellar or chimney, and this was probably due to the few degrees of heat required to maintain the temperature of a bee-room in a cellar thus constructed; and as my increased number of colonies will fill this room half full this winter, I am expecting the animal heat to increase the temperature so as to require a damper or the admittance of cooler air to this room.

The outlet tube was placed in a partition, thus making no rupture in the appearance of the room above.

I close the entrance of my hives in winter with a strip of wire cloth after placing on the bottom of the hive two sheets of thin paper (the first sheet having a tack or two at the rear), and thus add to the purity of the air in this bee-room by removing the dead bees twice during the winter. When only the lower cleat, the one holding the wire cloth is removed, a paper can be withdrawn in nearly all instances without a bee escaping.

Clarkson, N. Y.

BEE-KEEPING IN BRAZIL.

The First Bee Congress in Rio Grande do Sul.

BY DR. A. L. GREGORY.

Five years ago, when Mr. Emil Schenk came to this State from Parana, there were very few men who used a movable-frame hive. Mr. Hahmemann was the most practical man in the state, but he had to give up the business on account of his age. He loves the bees yet, but he is too old and feeble to work with them. Mr. Schenk bought a stock of blacks and began business, continuing his experiments with both German and American systems, which he began in Parana. We have no supply factories here from which we can obtain what we want. We make all fixtures by hand, or order from abroad, which is very slow and expensive. Finally Mr. Schenk adopted a system of his own, fitted to the needs of the country, then mounted a mule, and for months at his own expense sold models to beekeepers and took subscriptions for a small bee-journal which he published. It was not a lucrative affair, so after many hardships he finally sold the paper to a company in Porto Alegre, the capital of the state, he remaining editor. This company in some way interested the governmental authorities in bee culture. As a result of this the government sent Mr. Schenk to Germany two years ago to import Italian bees. He returned late last year. By hard work some queens were raised, and a few distributed at government cost. This year there will be more sent out.

The "Centro Economico," which is under state direction, asked Mr. Schenk to write a treatise on bee culture. He composed it in German, and the authorities ordered it printed in German, Portuguese, and Italian. The Portuguese, which lies on my desk, has 54 pages and 32 illustrations. American bee-men, imagine your bee literature to consist of only one number of GLEANINGS! That is all we have in this state in Portuguese or Italian. The Germans lead in bee culture. Mr. Schenk is editor of the *Brasilianische Bienenpflege*, a monthly publication of 20 or 30 pages.

In September, 1907, was the first bee congress in our State. The outside attendance was mostly German, though the people of Taquary took a lively interest. Steps were taken toward organization; instructions were given as to hives, foundation, queen-rearing, etc. A society was formed to aid the producer in obtaining better prices for his products. By the aid of this society the bee-man is to receive about 9 cts. a pound for good extracted honey. There is very little comb honey as yet.

Here is some talk of an experiment station. If this should materialize we expect bee-keeping to receive an impetus. This year, however, is bad, as the country is full of locusts, which are eating up all vegetation.

In case any of our readers want to become missionaries we can assure them there is much to be done in Brazil in instructing the people in the arts of living as well as in bee culture. To the extent of our ability we are trying to help the people spiritually, scientifically, and physically.

Taquary, Rio Grande do Sul, Brazil.

ARE BEES REFLEX MACHINES?

**Experimental Contribution to the Natural History of the Honey-bee by
H. v. Buttel-Reepen, Ph. D. Translated by Mary H. Geisler.**

Continued from July 1st issue.

THE LOSS OF MEMORY FOR LOCALITY THROUGH SWARM DIZZINESS, ETC.

Through swarm dizziness as well as through stupefaction (as before mentioned), memory pictures are extinguished, or, at least, are without influence.

If a so-called artificial swarm is made by sweeping the bees from the frames of a strong colony with their queen into a new hive placed upon a new stand, then all the flying bees return to the original hive, and only the young bees remain in the new one with the queen. In a genuine swarm, on the other hand, all the bees remain in the dwelling of their choice. They have forgotten their old dwelling. But it is not a complete forgetting, for, if a swarm becomes queenless within the first few days, then the bees return to the mother colony—the memory for the old home is reawakened. The extinction of the memory for locality is not, therefore, as final as in narcotization, etc. The old nerve-paths are maintained, but are no longer traveled over, because there is a diversion into other nerve-paths; but if the stronger influences are removed by queenlessness (Weiselmanruhe, see p. 12), then the old-trodden paths come into effect again and adjust the direction of the stimuli in the former way; i. e., earlier memory pictures are reawakened and the bees return to the mother colony.

An extinction of the memory of locality is brought about likewise by the apparently narcotic influence of buckwheat honey⁷⁹ in the cases mentioned before.

Also bees kept in a dark room for many days, and those numbed with cold⁸⁰ appear to lose their earlier memory for locality to a certain extent. Further, the throwing of bees into water, the bathing of a colony, will cause the disappearance of the acquired power of orientation.⁸¹ A colony thus handled can be placed in a different position without a return to the accustomed place of flight. Time has a substantial influence upon the disappearance of memory pictures too. In approximately five or six weeks, or often sooner, bees removed to a new position forget the influences of the old place. After this length of time the hive can be changed back and put in any chosen position of the old location without fear of the bees seeking the original spot. Memories disappear quickly if new impressions obliterate the old. If bees stay in a hive, wintering for months, therefore receiving no new place impressions, the impressions which were received before the wintering commenced remain. In very many cases it can be determined certainly whether a transference shortly before the first spring flight can be undertaken without much loss to the colony. If the first weather for flying is inauspicious, as is generally the case, and the temperature scarcely reaches the 7° to 8° C. in the shade necessary for flight, the bees fly out, lingering for only a short flight with slow orientation, and execute the necessary cleansing. They thereby impress upon themselves the new position. But if, as happens now and then, after a long period of cold, a relatively very warm spring day breaks in, the excitement in the hive is great; thousands press forth, and many hasten off for a longer flight with only a hasty, careless orientation. Under such circumstances a greater or less number, in coming back, return to the old place.

François Huber⁸² reports that in the fall he had fed some honey to great numbers of bees from a window; then the honey was taken away and the hives were kept closed all

⁷⁹ "If the buckwheat-honey flow is strong, then the bees seem to be unmistakably intoxicated, and they go into the nearest hive-entrance with filled honey-sacs. The observation has been made that hives which are passed over by bees from hives standing further back increase perceptibly in population and honey at the cost of the hives behind" (Bw. Centralblatt, Nr. 3, p. 35, 1894).

⁸⁰ Deutscher Bienenfreund, 35, Jahrg. 1899, Nr. 4.

⁸¹ François Huber, l. c. In men, after a violent illness, after a concussion of the brain, after stupefaction, after poisoning with carbon dioxide, etc., a loss of memory and retrograde amnesia occurs (Aug. Forel, Das Gedächtnis und seine Abnormitäten, p. 37, ff.; Zürich, 1885; A. Goldscheider, Die Bedeutung der Reize im Lichte der Neuronlehre, p. 28, ff.; Leipzig, 1898).

⁸² Nouvelles observations sur les abeilles, 2d edition, 2 vol., Paris and Geneva, 1814; German by Kleine, Einbeck, 1856; English editions in 1823 and 1841.

winter. When they were again opened in the spring, the bees came again to the window, in spite of the fact that there was no longer any honey there.

Bethe (l. c., p. 90) asserts as follows: "If bees cease to fly in autumn, then (as I have proven myself) hives may be placed even inside a circle three kilometers in diameter, each in a chosen spot. The bees do not return to the old location of the apiary when they begin to fly in the spring, but from the first come to the hives in their new positions."

This experiment of Bethe's is not conclusive and I would not recommend any investigator or bee-keeper to try it in the way described, for in nearly all cases all the flying bees will be lost.

If, following Bethe's suggestion, a colony is put in a different place in the fall when "the bees have ceased flying" because of the cold weather, one can not tell whether, in spite of the apparent approach of winter, in the next few days or in the first three or four weeks, a warm period with weather suitable for flight may not set in, during which the bees still have the old position securely in memory. If this happens (and it frequently does), then all the flying bees return to the old place and are lost. The next spring, of course, no return to the old locality can take place, for all or nearly all that would recognize the former position are already dead.

ASSOCIATION OF IMPRESSIONS.

During a dearth of honey, when bees are usually excessively fond of sweet things (see p. 26), a few bees discovered a honey-comb in my study, flying through the open window. More and more nibblers came, some of them getting caught at the second closed window. To prevent that, I placed the honey-comb in the opened window itself. When, half an hour later, the bees were flying back and forth I drove them away from the honey and closed the window. After perhaps twenty minutes I went into the bed-chamber above the study, the windows of which stood wide open, and found it full of bees. By this time I was observant, and after driving out the searchers and closing the window I went into the garden and noted their behavior accurately. They attempted in vain to press in at the window where I had fed them, then from time to time some flew to the next window and tried their luck there, then further to the next windows above, always keeping about a handbreadth above the window-sill, the height at which the honey had been in the window where they were fed. Thus I noticed bees seeking at all the windows of the house.

If the bees had actually associated impressions and connected the attainment of honey with the form of a window, then it was to be supposed that they would extend their search to the windows of the neighboring house about ten steps to one side, which, in fact, happened.⁸³

MEMORY FOR THE FEEDING-PLACE IN THE HIVE.

If an inner glass or wire-gauze door is kept closed, the back door of a hive may be opened without the bees getting out. Between these outer and inner doors there is usually enough room to place a feeder. If this is filled with honey or sugar syrup, the bees can reach the food when the slide in the glass door is opened, the outer door being closed. If one is feeding for the first time, the bees may be guided to the honey by placing a few upon it, or in some other way, for otherwise they do not transfer the food as quickly as may be desired, because it takes some time for them to find it. To prevent the excitement caused by feeding, this was done in the evening, and the empty dish taken out the next morning, the slide of the glass door being again closed. But on the next evening, or the one after, I noticed many times that, if I opened the glass door, the inmates streamed out so quickly that I had to hasten to close the outer door in order not to crush any. Also, if the feeding were done in the open air the bees often came hours and days afterward to the place where they had once obtained honey.

⁸³ Under the designation, "Instinct or Intelligence," I find in the *American Bee Journal*, Chicago, 1892, the following note: "If a dish of food is placed on the trunk of a tree, bees will soon search for honey in the same place on all the trees in the neighborhood. A similar thing happens if bees are fed from a window facing south. Soon bees are discovered seeking at the south side of all the neighboring buildings."

It would be difficult to doubt that here we have to do with memory processes; for if bees are reflex machines, following "chemotropically" only adequate mechanical stimuli; then we can not understand why, when the stimulus has not been present for a long time, they react again and again as if the stimulus still existed. A plant never reacts heliotropically or chemotropically to a past stimulus, etc., if the respective stimuli are no longer acting upon it. But here we see movements set loose, although the cause—the honey on the feeding-spot in this, case—no longer exists. We see bees once fed, often, after two days, seek that place in vain; but then they modify their procedure; they learn that there is no longer anything to be obtained there, and cease from further flight, often after a few hours, as before mentioned.

CONDUCT OF BEES IN THE BUCKWHEAT SEASON.

If colonies stand in buckwheat, the flight is lively in the mornings until about ten o'clock; then it lessens, and is entirely quiet for the greater part of the day, beginning vigorously again the next morning. The buckwheat honey flows only in early morning; so, as the nectaries dry up, the bees fly out a couple of times and then discontinue their vain flight. In spite of the shimmering sea of flowers, in spite of the strong fragrance, only a few bees may usually be found after ten o'clock in the buckwheat-field.

Here the stimuli of color and scent are constantly present, and there is also the habit of daily flight to the same fields; and, in spite of that, we see that flying is discontinued. Here, undoubtedly, as well as in the preceding feeding experiments described, the processes of learning and remembering may play their important part.

ARE BEES ATTRACTED BY THE COLOR OF FLOWERS OR BY THE NECTAR?

This might be a good place to consider briefly this interesting question. While Plateau⁸⁵ substantially advocated the view that bees are attracted chiefly by nectar and not by color, it was above all Aug. Forel⁸⁶ who stood almost alone in opposition to this view, based on many years of admirable experimentation. Recently some younger investigators have been associated with him, who can experimentally verify his conviction that it is chiefly the color which serves to attract. Upon the foundation of the work of Forel, Andreae,⁸⁷ Giltay,⁸⁸ Detto,⁸⁹ Kienitz-Gerloff,⁹⁰ we can establish as proven the statement that the honey-bee, *Apis mellifica* L., is attracted substantially by the color of flowers, and not mainly by the nectar. The color of the flower is indeed a gay flag which proclaims at a distance, "Here there is something to sup."

That bees observe flowers keenly, follows from the fact that single bees in foraging practically never visit two kinds of flowers, but always hold to one kind. This may easily be seen by examining the pollen-sacs on the return of the bees to the hive. One color of pollen is always seen; a mixture of colors, I have observed but once.

PLACE PERCEPTION IN THE QUEEN.

In the literature of apiculture the observations concerning the memory of locality in the queen, so far as the duration of this memory comes into question, diverge very far from each other. Some say that she has capacity for remembering her hive, the outside and surroundings of which she learned to know in her single virgin flight, for more than three years; others say, for some days or weeks. The source of failure in these observations is connected with the frequent unnoticed changes in queens going on unaware of the bee-keeper. He often thinks that he still has the old queen in the hive when she has been replaced for some time by a new one.

⁸⁵ Plateau, Felix, Comment les fleurs attirent les insectes. Bull. Acad. roy. d. Belgique, 3 série, T. 30, 1895; T. 32, 1896; T. 33, 1897; T. 34, 1897; Recherches expérimentales sur la vision chez les arthropodes, ibid., 1888, etc.

⁸⁶ Forel, Aug., Recueil zoologiques Suisse, 1 série, T. 4, 1886-88 (also as separate); Expériences et remarques critiques sur les sensations des Insectes, partie I.-V.; München (Reinhardt) or Paris (Klingsieck), 1900, 1901; Die psychischen Fähigkeiten der Ameisen und einiger anderer Insekten, München, 1901.

⁸⁷ Andreae, Eugen, Inwiefern werden Insekten durch Farbe und Duft der Blumen angezogen. Beihefte z. Bot. Centralbl., Bd. XV., Heft 3, 1903.

⁸⁸ Giltay, E., Ueber die Bedeutung der Krone bei den Blüten und über das Farbenunterscheidungsvermögen der Insekten, I. Pringh., Jahrb. f. wiss. Bot., 40, 1901.

⁸⁹ Detto, Carl, Blütenbiologische Untersuchungen, Theil I. u. II. Flora oder Allg. bot. Zeitung., 94, Bd., Heft 2 u. 3, 1905.

⁹⁰ Kienitz-Gerloff, Professor Plateau und die Blumentheorie I. u. II. Biol. Centralbl., 18, 1898, u. 23, 1903.

It is true that queens which fly away from the comb just taken out of the hive usually get lost because they can not find their way home.

I made the following observation: When a queen flew away as just described, I stood perfectly quiet, exactly as I was when she flew, in the hope that, if she had no memory of her hive, she would surely return to the place from which she flew, since bees which have not before oriented themselves always go back to the place from which they flew.²¹ After barely a quarter of a minute, in fact, the queen sank down again, not on the comb, to be sure, but upon a little piece of board which lay in the grass a step distant. There I caught her easily and put her back in the colony. In keeping quiet and not changing the surroundings I followed an old bee-keepers' rule, a practice developed from much observation like the above.

But it has, undoubtedly, been established many times by reliable observers that a queen finds her way surely to the entrance of her hive a month after her marriage-flight.

A young queen often errs when the hives stand very close together, if she returns hastily from the marriage-flight. If hives from which flight will take place are marked, therefore, for example with a twig covered with leaves,²² her return is very much more assured. This is proof that the queen impresses accurately upon herself the appearance of her dwelling.

MEMORY FOR LOCALITY IN SCOUTING BEES.

In the behavior of the so-called scouting bees we find one of the most conclusive proofs against the vague hypothesis of an "unknown force." They prove most emphatically, in my opinion, that an orientation truly takes place through the sense of sight, through memory pictures.

I can not here deny myself the pleasure of inserting the interesting information about scouting bees which Baron v. Berlepsch, the so-called Bee Baron,²³ sent to the *Bienenzeitung*, VIII., No. 7, 1852.

"Annually, about swarming time one often sees bees in considerable number at holes in the walls and crevices of old buildings, walls, and trees. They creep in and out, apparently seeking something, run anxiously outside and back, flying to and fro. They buzz about as if in front of the hive, and one must have considerable knowledge of bees to be able to distinguish these so-called scouting bees from the true colony. Even if there is no room behind the hole or crevice, I have often seen them forming a cluster before one from six to eight inches long, two or three inches broad, but not at all deep. In so doing they were always uneasy, which does not happen, as is well known, with bees in front of a real hive. These bees are usually regarded as belonging to colonies about to swarm, sent out to find a good place for quarters for the next swarm, hence the name scouting bees or quarter-makers. I see these bees every year at the crevices of the old knight's castle, and in the garden wall and the barn gable. These crevices are often hardly one inch deep, and one-half inch wide, so that there is not room for even the smallest after-swarm. My observation that, although indeed no year passed in which not one but most of my after-swarms escaped, a swarm never alighted here, led me to doubt the common belief; and in 1844 I determined to make very exact investigations and experiments, and to take careful note of everything. When, therefore, on May 12th of that year I first saw bees on the edge of the wall, I had them sprinkled thoroughly with chalk toward evening by my usual helpers, and the gardener and I stood in front of the hives to see to which the bees belonged, and whether they were all from one or from more than one hive. Soon coming in, they all entered No. 77 ('Solomon the Magnificent'). Early the next day they were on the wall again, and so it went on for four days. Each evening they were powdered, and their return carefully noted (scouting bees had in the meantime appeared at many other places). They belonged, undoubtedly, to the magnificent Solomon. Finally on the 17th, about ten o'clock, the powerful 'Padischah' swarmed out with a formidable host, went in the direction of the scouting bees, but hung on a dwarf tree hardly

²¹ Orientation begins, therefore, at the moment of the flying out (see Box Experiment, p. 23).

²² Dathe, *Lehrbuch der Bienenzucht*, 1892; Bensheim, p. 279.

²³ As is well known, v. Siebold, demonstrated Parthenogenesis in bees for the first time upon the estate of v. Berlepsch in 1855 (see "*Wahre Parthenogenesis bei Schmetterlingen und Bienen*," Leipzig, 1856, p. 110 and following).

twenty steps from the hives, fully exposed to the burning sun. I let them hang, and remained standing near. About eleven o'clock they again broke loose, soon alighting in a somewhat shadier place at a short distance, remained there until three o'clock, broke up very quickly for the third time, and went over the garden pavilion toward the open fields. My assistants ran after them. I mounted a horse as quickly as possible, and galloped after them. Before I came up to the assistants the swarm was lost to sight, and we have it yet to see to-day. The scouting bees were still on the wall, went back again in the evening to No. 77, and appeared early on the 18th. This reappearance was indeed a disappointment, for, powdered on the evening of the 18th, they all entered No. 7 ('Dr. Franzia'), and not one to 'Solomon.' On the 19th, quite early, I had the crevices in all places carefully closed with lime, and put up a straw hive with an alighting-board. The scouting bees came, at first crept behind the hive around the closed crevices, then took possession of the hive. I tilted it frequently to see what the bees were doing inside. I saw little; they ran around anxiously as if they might be cleaning out the hive. On the same day at noon a swarm emerged from 'Franzia' and, after changing its place twice, finally alighted about four o'clock under a shady linden-tree. Here it could be observed comfortably. Single bees flew in all directions, each time mapping out the place with the usual circling flight, then returned; and here the swarm hung over night. With the first shimmer of morning red, there I sat again with my assistants, the garden doors open on all sides as on the previous day, the groom (all the implements for capturing swarms on his back, a true Cupid with arrows) at a short distance with two saddled horses. At 5:30 I saw more bees fly quickly toward the south without circling, and none returned. At 7:30 the swarm broke away again, flying low and very slowly in a southerly direction, and the leaders could be distinguished rather clearly. The groom hastily mounted a horse, and I went running *ipsissimis pedibus* beside the head of the swarm nearly to the end of the garden, ever more and more convinced that the swarm knew where it wished to go. The assistant brought out the other horse. I threw myself upon it, hastened out of the garden, and followed the groom through thick and thin. We followed well at a moderate trot for a quarter of an hour, but finally the swarm went so quickly, always at a height of between four and nine feet, and in a southerly direction, that we had to ride indeed *en carrière*. We came to the next village, not three quarters of an hour's ride distant, and the swarm went into a farmer's garden. I went over the hedge as if in hunt, was in the middle of the swarm with the horse, and then saw it enter a hollow pear-tree. This move took place with such celerity and surety that it seemed to me that the swarm without a doubt had chosen this place in Seebach (through scouting bees). A capture without smoke was not to be thought of, so I begged the owner to let me stay in his Eden for a while (for I would smoke out the swarm for him the very day into a hive, and leave it to him as his property). After scarcely twenty minutes the bees began to carry out little chips from inside the tree, went foraging, etc."

Can we explain this interesting procedure only upon the ground of an "unknown force leading back to the hive"? Can we explain it without accepting the existence of a memory, a capacity for orientation through the eyes, through memory pictures? I think not in the least.

Must we not here acknowledge a means of communication, a method of understanding which does not rest upon odor reflexes? I can not think of this going on without some means of understanding, and I presume that the scouting bees lead the swarm by an alluring sound which naturally can not be observed.

It is noteworthy that, of 60,000 to 80,000 bees, about fifty to a hundred serve as scouting bees; but, peculiarly enough, only before the swarming of the unwieldily, usually low-placed first swarm (often with an old queen heavy with eggs), while the colony never or very seldom sends out scouting bees before the issue of the light-footed after-swarm which with the unfertilized easily flying queen generally alights high up.

Now and then the scouting bees make it very convenient for the bee-keeper by selecting an empty hive and leading the swarm there.⁴ Dishonest people who wish to capture

⁴ Deutsche Bienenz. in Theorie u. Praxis, Nr. 9, p. 144, 1899.

swarms not belonging to them put out so-called bait skeps, or hives; and if the scouting bees discover these they often lead the swarm there.

One of the highest colonies ever found (300 feet high) was in the statue of Liberty on the dome of the capitol in Austin, Texas. How high the scouting bees must have flown to discover this strange place,⁹⁵ and what power of allurements the explorers must have used to be able to lead the colony to such an unaccustomed height!

THE EYES OF BEES.

Before we turn further to other interesting observations concerning the memory of locality, let us inquire why there are such large well-developed eyes in the three kinds of bees, if orientation through the sense of sight be denied. This is no idle question, for wherever eyes are but little or not at all used, a gradual stunting takes place, etc.; thus, for example, to restrict ourselves to social insects, in the ant, *Solenopsis fugax*, the workers possess eyes with six to nine facets, while the workers of *Apis mellifica* have about 4000 to 5000, the drones about 5500, and the queen about 5000 facets on each eye, besides the three ocelli which are apparently for distinguishing near objects.⁹⁶ Bethe has since rejected the statement that the ocelli are probably used for seeing near objects, as incompatible with the "first principles of physiology." I thereupon replied that the renowned physiologist Johann Müller was the first to advance this view, and that observations in natural history confirm and even substantially support it. I have communicated the details in my "Stammesgeschichtlichen Entstehung des Bienenstaates" (pp. 90-95), Leipzig, 1903.

Bethe credits bees with only "a slight capacity for receiving light stimuli" (Bethe, p. 82), basing his view upon an experiment which I on the other hand can not consider convincing. If a large screen be placed in their way, the routine-loving bees will follow the usual path of flight until within 1 to 1½ meters of the obstacle, then suddenly rise and fly over it. But this does not prove conclusively that the bees had not long before seen the immense screen (two and a half meters high and three meters broad). They follow freely the accustomed path as long as possible. Bethe himself says "that a once used correlation of movements may be retained for a long time" (Bethe, p. 92).

In order to experiment to see that bees, instead of being "near-sighted," are very far-sighted, stand at a distance of about ten steps from the hive at the time of the buckwheat bloom, the nectar of which, as already mentioned, excites bees extraordinarily. The bees coming out from the hive-entrance quickly, wholly indifferent as to the direction of the wind, leave painful proof of their ability to see; and a man presents a considerably smaller surface than the screen before mentioned.

"According to our knowledge, everything in living nature has a purpose" (Bethe, p. 19); therefore the very large eyes of bees must be for the purpose of guiding the insect safely and well.⁹⁷

The brain of the bee, very strongly developed in comparison with those of other insects, is certainly not without purpose. The powerful optic lobes (*Lobi optici*) prove unquestionably the great share that the eyes have in the nervous processes.

THE FLIGHT OF ORIENTATION.

How much bees need eyes in flying out from the hive, shows in a very clear way from their striking behavior during the first flight. As the bees fly out they turn their heads toward the hive, and in the continuous hovering up and down (resembling the gnat's dance), the hive itself, the neighboring hives, and the bee-house are surveyed; and, indeed, I repeat it, the head is constantly turned to the hive, so that even a slight flying backward is shown. This is the so-called first-play (*Vorspiel*)⁹⁸ which is not taken into consideration at all by Bethe, and has not been considered by him as a specially characteristic proof of the orientation by the sense of sight. After this short preliminary flight, small and then larger orientation circles are taken, and thereby the near and distinct surroundings are impressed on the memory.

⁹⁵ American Bee Journal, 1892, Chicago.

⁹⁶ Thos. Wm. Cowan, The Honey-bee, its Natural History, Anatomy, and Physiology; London 1890; German by Gravenhorst; Braunschweig, 1891. a. o.

⁹⁷ Up to the present time no one has doubted that the house-fly (about 5000 facets), or the dragon-fly (about 12,000 facets), orients itself during flight solely through the excellently developed eyes.

An old bee flies out from the entrance, if the forage is rich, directly and swift as an arrow. It darts from the entrance through which it has often flown, and knows its path of flight. A young bee flying for the first time must first make a flight of orientation. This is a conclusive proof that bees learn."

THE FINDING OF THE HIVE THROUGH THE SENSES OF SIGHT AND SMELL.

While the sense of sight is sufficient under ordinary circumstances for bees to find their way home, still they use the sense of smell also under the following conditions:

If a colony has been brought from another district, and the slide is opened after the hive is in place, then the bees flying out hasten away without orientation, for naturally they do not know of their change of place, and believe themselves in a well-known neighborhood. In such cases they are seen striking out either in graded flight or mounting in the well-known corkscrew lines without turning the eyes to the hive, as is always done in the described flight of orientation. According to my observation, such bees, flying without first orienting themselves, often come back in a surprisingly short time, because, failing to see the customary landmarks, they immediately begin to seek orientation. If the newly procured colony stands between others which look like it, then in finding their way back there is what Herr Roth, the leader of the bee-keepers' school at Baden, wrote to me "a tasting with the sense of smell, which is extended to the neighboring hives." This is a striking phenomenon easily observed. An orientation with the eyes goes on at the same time, so that the real flight of orientation does not have to be carried on later.

As I have said, such unoriented bees that fly out return quickly, often after five or ten minutes, with full burdens if the weather is mild and there is no wind. In cooler weather, and with sharp wind, many go too far into unknown regions and do not find their way back.¹⁰⁰

Bees remain out on flight seldom longer than one-half hour if the forage is near—almost never over an hour if the forage is distant and in unknown surroundings.¹⁰¹ They then go home apparently willingly, with a half or a quarter of a full load, as one can easily see in the tiny pollen-sacs and in the slight body.

Let us now hear from Dr. Beth's description concerning a transported hive (l. c., p. 92). "Lubbock placed some honey out in a room to which some wasps came: he then closed the window which faced the nest. The wasps flew mainly against the window, but finally flew through the other open window. After a few times the greater number flew immediately to the open one. Since, however, a kind of 'accustoming,' based upon an unknown force, seems to enter in finding the way home in this experiment, I hoped to succeed in getting results by observing accurately a new colony of bees. It was bought in a village seven kilometers away, and was placed in the Institute garden about seven o'clock in the morning. At first only a few bees hummed around in the air."¹⁰² A great number sat upon the flight-board and the front wall of the hive, as is generally the case in excited colonies. Between nine and ten o'clock in the morning the first ones flew away.¹⁰³

⁹⁸ Dathé, l. c., p. 146.

⁹⁹ The following observation proves how little bees accustomed to the hive's place and surroundings regard the place from which they fly in their swift exit. If the second hive-entrance, which is in the upper honey-chamber (super) is opened, for days bees will be seen leaving from this entrance, but never entering it. The entering takes place constantly in the usual path through the entrance below. Only by and by bees begin to fly into the upper one (cf. p. 40).

¹⁰⁰ I quote the following from a private letter from Dr. Dzierzon, a distinguished bee-keeper to whom we are indebted for the discovery of parthenogenesis in *Apis mellifica*. Dzierzon died last year 96 years old. "There is not the slightest doubt that bees find their way back to the hive in the way you have described, guided by pictures of their dwelling and the near surroundings gathered as they flew away. Instinct is the explanation, in so far as they are led to observe accurately the position of their dwelling and the nearest surroundings in the first flight out. On account of this, as you know, in the first flight, (Vorspiel), they turn around; and, forming small and then larger circles, gain an exact impression of the neighborhood and the hive. I have often wondered at the rapidity with which they are able to do this. I brought a hive from a distant apiary, and on opening the entrance a few bees flew out, probably for water, not suspecting the removal. In the mild weather they were not lost, but came back to the same place, and soon the flying after water was going on as if nothing had happened. Thus quickly a part of the bees had become accustomed to flying in the new apiary," etc. Even though this letter contains no new knowledge of the biology of the bee, yet it seems to me that its publication is appropriate, in view of Beth's opinions following.

¹⁰¹ As was mentioned before (see p. 19), the leader of the bee-keepers' school at Baden observed that his bees returned from a buckwheat-field six kilometers away, with full burdens, on the average in thirty minutes.

¹⁰² It is a pity that we can not learn how these bees acted, whether they oriented themselves, etc.

¹⁰³ Accordingly this appears to have been a cool autumn or spring day, else it is inexplicable why the bees hesitated so long with their flying-out. Or was it windy or rainy weather? Or were the bees wearied with the transportation?

They corkscrewed in widening circles into the air, as bees do when they have just been set out. After three or four circles (in which note well they had never turned their eyes toward the hive),¹⁰⁴ they took their direction and flew quickly to the meadows. A great number of others followed, all corkscrewing into the air.¹⁰⁵ About three o'clock the first ones returned laden with honey and pollen.¹⁰⁶ They came from the east (not from the south whither most had gone), and flew from the place where I first caught sight of them (5-6 meter distance) in a *straight* line to the entrance. If here a noticeable accustoming had played a part, perhaps as a memory process, it would be impossible to think that the insects would fly in such a straight line for the hive. A force then must be present, which draws them like a magnet to this place in space, and the described "accustoming" is something secondary, unnecessary for the occurrence of the reaction."

Since we have not the slightest scientific proof whether these bees which returned at three o'clock, which "flew in a straight line to the hive," did not belong to those which had hummed around the hive in the early morning, and therefore had been able to notice the position of the dwelling accurately, this experiment proves nothing, because we are not informed concerning the method of the flying-out of the later bees.

Bethe speaks expressly of "accurate observations," so we must accept as a matter of course that there were no errors in his observations. If, therefore, the foregoing really happened as pictured, this experiment does not, I believe, present a conclusive proof for but against the "unknown force." According to my long years of experience, a five or six hours' roving and remaining away from the hive under the conditions described is entirely impossible. We may here, from what is known of the natural history of the bee in this direction, count upon the possibilities expressed before. Later on it turned out that the observation was not an accurate one. Cf. p. 90 of my *Stammesgeschichtliche Entstehung des Bienenstaates*. Leipzig, 1903.

If, indeed, a magnetic force existed to draw bees homeward, then without doubt the bees which flew out would have succeeded in reaching home inside of ten minutes or at most an hour after leaving.

¹⁰⁴ Bethe appears to consider this the normal flight out; above all, nowhere does he mention the entirely different flight of orientation.

¹⁰⁵ As none of these bees flew off in a straight line, it is natural to suppose that these were greatly irritated by the transportation or suffered by the lack of air during the transportation. The thick gathering on the outside points to the latter supposition, as does also the late flying-out.

¹⁰⁶ Therefore after five or six hours! Doubtless almost all the bees which flew out in the forenoon were lost, or returned again to the known neighborhood, because the village was only seven kilometers distant, for under the conditions cited an absence of five or six hours can not be accepted as true.

BEESWAX FINISH FOR WOODWORK.

I read about your beeswax finish; and as I am building a new home I should be very grateful if you would let me know what kind of wood is best to use the finish on, and what proportions of beeswax and turpentine.

Springvale, Ont.

LINUS B. GOWAN.

[The beeswax finish to which we referred is made by mixing turpentine and melted beeswax in such proportions that, when cool, the mixture will be in the form of a thin paste. The proportions we used were about three parts turpentine to one of melted wax, by measure. While hot it should be thoroughly stirred. If not thin enough when cold to spread nicely, more turpentine without heating may be added.

This paste is spread upon the woodwork, covering it thoroughly; then with a brush the surplus is cleaned off, after which it is immediately rub-

bed down with a rag until a glossy finish is secured.

Nothing but pure beeswax will answer the purpose. The slightest admixture of paraffine will spoil it. The finish, while not glossy like varnish or that of hard oil, has a rich, smooth appearance that brings out very clearly the grain of the wood. Indeed, to our notion it is richer and more in keeping with modern finishes than the old-fashioned glossy cheap varnish look. It does not begin to cost as much as hard oil or any other varnish. While one may use a filler, yet it is hardly necessary, as the effect is very pleasing without it. Indeed, the wax itself acts somewhat as a filler as well as a finish.

As to woods, it looks nice on any wood, either hard or soft, although the effect is much richer with an oak or a maple than with the yellow pine. If we were to use the latter we would advise using what is known as the weathered-oak stain, then apply the beeswax finish. Our offices are all finished in this way on yellow pine, and the effect is certainly very pleasing.—ED.]



FIG. 1.—HOLLAND SERIES. STRAW SKEPS ON THE HEATH.



FIG. 2.—HOLLAND SERIES. MR. MATTHES AND HIS HELPERS AMONG THEIR PETS ON THE HEATH.

BEE-KEEPING IN HOLLAND.

A Visit to the Largest Modern Bee-farm in Holland.

BY J. H. J. HAMELBERG.

Although apiculture in Holland is not of so much importance as it is in the United States it may, perhaps, interest some GLEANINGS readers to learn something about it.

Movable-frame hives have only lately come into general use. It is not many years ago that a modern hive was considered quite a novelty on our bee-farms. Of course, we have had the large Gravenhorst straw hive with movable frames, which is still a favorite with many bee-keepers, and deservedly so, as it is a hive in which bees winter uncommonly well. Its clumsiness is the principal objection. Then there have been in use the Berlepsch, the Alberti, and the Gerstung hive; but the impractical way in which their frames had to be handled, and their cost, made them unpopular. It is only after the American system of handling frames from above had become better known that modern hives gained in popularity. As yet, however, the old-fashioned straw skep is most generally used here; and, when visiting our heather-field in the right season, one can certainly count five skeps to one movable-frame hive.

It is at "The Bee," the apiary of Mr. Hans Matthes, at the quaint old village of Breukelen, where modern apiculture is practiced on the larg-

est scale in this country. Three years ago Mr. Matthes started in business with 200 colonies in straw skeps, which he transferred to modern hives, the invention of his foreman, Mr. R. Tukker, a bee-master of repute and extensive experience.

The Tukker hive is a divisible-brood-chamber hive measuring outside $20 \times 15\frac{3}{4}$ inches square, and 18 inches high. Within this body are hung, on cleats, two separate boxes, one on top of the other, each measuring $15\frac{3}{4} \times 11\frac{3}{4} \times 5\frac{1}{2}$ inches, thus leaving an empty space between the inner wall of the box and the brood-chamber, thus making the hive practically double-walled. Each of these brood-bodies contains 8 hanging all-wood frames $14\frac{3}{4} \times 4\frac{3}{4}$; and supers with the same frames can be placed on top.

With this hive Mr. M. has to handle one kind of frame only; and, working mostly for extracted honey, he claims this to be of great advantage, although it would seem the Tukker hive could be improved by having the two brood-bodies in separate casings in order to prevent disturbing the bees when the under box has to be gotten at, which now can not be done without first lifting out the upper box and exposing the bees to the inclemencies of the weather, unless a separate super is carried around when examining the hives. However, Mr. Matthes and Mr. Tukker are well satisfied with their kind of hive.

To make the most of the honey crop in this country, it is absolutely necessary to travel with the bees. Early in the season, generally about May 15, Mr. M. goes with his colonies to Haar-

lem Lake, formerly a broad sheet of water, but now converted into rich farm land, where cabbage and mustard are extensively cultivated for seed. Fruit bloom with us falls about the same time, but the yellow cabbage and mustard flowers yield far more honey than fruit-blossoms (although not of so delicate aroma), *if* the season is favorable, which, unfortunately, has not been the case very often in recent years.

About the middle of June the colonies at Haarlem Lake can also begin gathering from the pastures abounding with white clover; but our main hopes are always fixed on the honey-producing qualities of buckwheat and heather. Unfortunately, however, the cultivation of buckwheat is rapidly on the wane, our farmers not considering it a profitable crop. On the other hand, only very poor soils are now used for buckwheat; and such soils, being mostly found in the neighborhood of heather-fields, the practical bee-keeper can look out for a place from whence his bees can work on both buckwheat and heather, the former blooming during July, the latter from the beginning of August until the early part of September, and sometimes later. However, one night of frost, such as we had last year as early as the 25th of August, will stop the honey-flow at the heath at once.

Until now, Mr. M. has not favored any foreign race of bees. He sticks to the common black bee, believing this kind to be best suited for our changeable climate. Neither has Mr. M. discarded altogether the old-time straw skep. When properly made, viz., with walls two inches thick, bees winter uncommonly well in them,

and very often they will begin brood-rearing in them some weeks before they do in wooden boxes, thus giving earlier swarms. Besides, a good many Hollanders are not yet familiar with extracted honey, preferring the comb honey of their youth, especially when gathered on the heath (we being a conservative people, Mr. Editor). To gratify this taste, Mr. M. had made very attractive-looking flat tin boxes of a size to contain a square piece of comb honey of exactly one pound. For the filling of these he mainly depends on the produce of the straw skeps, first killing their bees or transferring them to modern hives. Heather honey being almost inextractible on account of its thickness, that gathered in movable-frame hives is generally left with the bees for their winter stores.

In managing his apiary, Mr. Matthes follows American methods to a great extent, and GLEANINGS keeps him posted concerning such. He is ably assisted by his foreman, also by the charming Mrs. Matthes, whenever her household duties permit it. The old way of putting hives close together in long rows Mr. M. still sticks to, however. At home the colonies stand under cover, which can be removed in parts—a practical idea originating with Mr. M. himself. But considering he has now reached the number of 400 colonies, which he does not wish to increase, it would seem advisable to have the colonies placed in groups with sufficient space between them to put the non-swarming methods or Heddon's way of preventing after-swarms into practice, primary swarms usually finding a ready sale at The Bee.

Compared with the reports GLEANINGS occa-



FIG. 3.—HOLLAND SERIES. RESTING AFTER A HARD DAY'S WORK.

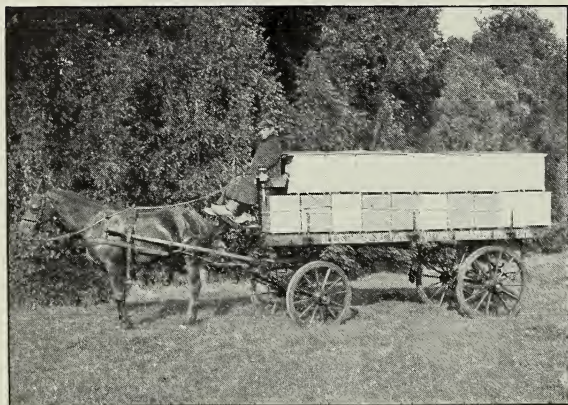


FIG. 4.—HOLLAND SERIES. STARTING FOR THE HEATH.

sionally gives us of some harvests on the other side of the pond the production on The Bee is rather small. More than 50 lbs. a year per colony is hardly ever gathered in this country, and usually the production is far less—30 to 40 lbs. of surplus being, on an average, the yearly harvest per colony. However, as good extracted honey sells here at 35 cents a pound, while Mr. M.'s tins of comb honey find a ready sale at 40 cents each, the business can still be profitable.

Visitors are always gladly welcomed at The Bee, Mr. M.'s hospitality and courtesy never being called upon in vain. His farm is situated in one of the most picturesque parts of Holland. Readers of GLEANINGS, when visiting our country, will do well to take at Amsterdam an early train for Nieuwersluis, a trip of but 20 minutes, when a walk of about two miles through a beautiful alley of gigantic old oaks will bring them to Mr. M.'s residence.

♣ In conclusion it may not be out of place to mention here that our government is slowly awakening from the torpor it has until recently remained in with regard to the promoting of the interests of bee-keeping. As yet our Department of Agriculture has no separate division for apiculture; in fact, I do not believe the whole department holds one

single official able to distinguish a queen from a worker. But we have one very active society for the promotion of bee-keeping, and, of late, the government has increased the subsidy for this society from \$500 to \$1000, thereby enabling it to appoint a scientifically and practically trained person to give all desired information to its members, and to expound the methods and theories of bee-keeping at public meetings in our bee-center. Besides, our organization issues a monthly review, and appoints yearly a commission chosen from our best-known practical bee-keepers and entomologists, to examine candidates for a diploma of bee-master. A program of the requirements for this degree has been carefully considered and finally agreed upon by the society, and it necessitates serious studies indeed to go up for this examination, very few candidates having succeeded until now. Some day, perhaps, we shall have one of these at the head of a separate bureau for apiculture in our agricultural department; but first, as we say here, much water will yet have to flow to the sea. However, slow but sure is our way, and so we work steadily on and don't complain.

Maarssen, Holland.

[[It has been supposed that a very highly cultivated country would be unfavorable to bees; but the foregoing article would indicate otherwise, for no country surpasses the Netherlands in this respect. Probably the results per acre are 100 per cent greater than the best portions of the United States. It is evident that the Dutch are fast adopting the latest ideas.—W. K. M.]]



FIG. 5.—HOLLAND SERIES. MR. R. TUKKER EXAMINING HIS COLONIES.



MR. LEVI HUMMELL AND HIS HOME-MADE HIVES.

NAILS FOR SUPPORTING FRAMES.

Leaves for Winter Packing.

BY LEVI HUMMELL.

I make my own hives, which are 18 inches long, 12 wide, and 12 deep inside. I made the frames after the Hoffman pattern, with the exception that the top-bar does not extend out. For a support I use a finishing-nail. I think if more would use nails to support the frame there would not be so much trouble with propolis.

I built a bee-house 8 ft. wide and 10 feet long. In it I can winter 44 colonies packed with leaves. Winfield, Pa.

[The use of nail supports as here described has been before mentioned. We have tried them, and so have others. The trouble seems to be lack of strength, and, moreover, they are unpleasant to handle; but some, doubtless, will like them.—ED.]

BEE-MOTH.

How and Why it Becomes Destructive to Stored Comb Honey.

BY WM. W. CASE.

It is not the intent of this article to enter upon a dissertation on the bee-moth, its life, habits, etc., but to answer the oft-repeated question, "Why is it I can not keep my comb honey from being ruined by the bee-moth unless I fumigate it at least twice?"

The quality of honey is never improved by sulphur, and quite often it is more or less injured by the fumigation—a process never necessary if we rightly know the conditions under which the bee-moth becomes destructive. There are but

two causes of damage to comb honey by the bee-moth. The first is slovenliness; the second is ignorance. Now, it is a well-known fact that the larvæ of the bee-moth, like all other larval life, can not grow and develop without some source of nitrogen, and that, deprived of nitrogen, it immediately dies; and when we consider that the pure honey-comb contains absolutely no nitrogen, then we must also look to some outside source of destruction separate from the comb itself—a source of nitrogen.

In stored comb honey there are just two sources of nitrogen, without which it is impossible for larval life to develop. The first, isolated cells containing pollen; second, excessive travel-stain—that ear-mark of slovenliness in the bee-keeper. No matter how healthy a larva may be at hatching, unless it can immediately find some source of nitrogenous food it almost immediately dies, after, perhaps, having gnawed a pinhole $\frac{1}{4}$ to $\frac{1}{2}$ inch in length—one not sufficient to mar a comb in the least—in fact, hard to detect with the naked eye, and leaving its little pink starved body in plain view on the surface. If it hatches in the immediate neighborhood of a cell containing pollen it grows with amazing rapidity, and in a very short time, especially in hot weather, may muss and spoil half a dozen sections. Prevention—store no honey containing a cell of pollen unless you expect to fumigate, and that thoroughly.

Again, if the larva hatches upon a comb more or less travel-stained it will live for quite a long time on the footprints, and in its frantic search for nitrogen it will eat almost all such cappings off before it dies, its roads (about the width of a common pin) running in all directions over the stained surface, ruining the comb, while it eventually dies of starvation—its work, however, being frequently laid to the lesser wax-moth, *Achraea grissella*, where, in fact, such lesser wax-moth does not exist.

Of course, such honey should never be placed with clean honey; in fact, there is neither business nor excuse for such honey at all, its very condition without moth damage rendering it unfit for market, and deservedly reducing the price from 25 to 40 per cent, and also lowering the tone of the whole honey market wherever exhibited.

It will be readily seen from the foregoing, that, if honey is taken from the hive when it should be—that is, as soon as sealed, and before becoming travel-stained, and each comb held to the light to reveal pollen-cells, it can be stored with the assurance that absolutely no damage can result to such honey from moth-larvæ.

A cupboard filled with more than 800 sections, without fumigation, during July, 1907, and packed for market the last week in November, revealed but three combs injured by moth-larvæ—one in which a cell of pollen had been overlooked; the other two, slightly travel-stained near the bottom, were well "roaded" as far as the stain extended.

The few if any sections containing pollen-cells may be placed where easily inspected, and, together with any travel-stained ones, may be placed in a box, and fumigated if necessary; for while travel-stained comb will rarely bring larvæ to full development, the larvæ will ruin the comb surface. Of course, where honey is left on the hive until much of it is badly travel-stained, fumigation becomes an absolute necessity.

Fumigating a large lot of honey may not always damage the quality; but it is also quite certain that the quality is never improved by it; and if not done by an expert it may not be complete enough to eradicate the larvæ, especially when well encased in roads, or, it may be, overdone to the extent that much of the surface assumes a greenish cast and a flavor condemned by most epicurean noses.

Baptisttown, N. J.

AUTUMN OR SPRING FEEDING.

Extracting Honey and Feeding Back, vs. Furnishing Bruised Combs of Honey.

BY J. GRAY.

I have read with interest the articles on the above subject. The truth lies midway between the two, and is equally applicable to your country and England. During my tours, extending over a considerable number of years, I have met many advocates of both systems, and have been enabled to judge the effects of both systems impartially.

Alexander is right in extracting to give the queen room. I doubt not many of your correspondents have reached the same point, only by an easier path, which I much prefer.

There are four vital points in successful spring work, each essential to the success of the colony, as follows: 1. A good queen; 2. Bees to cover her work; 3. Plenty of stores; 4. Stocks well established on good old combs. It's the third point this article deals with; it is unwise to force nature too early, hence the waiting for "settled warm weather." Bees void their feces only on the wing, and active brood-raising means the consumption of more pollen, which means more feces to get rid of. A bee fills its large air-sacs

with air, when on flight, by closing its spiracles and contracting its muscles. It is enabled by the air pressure to empty its colon.

Autumn feeding, or reserve combs of stores, are essential up to this point of the season. Now comes the strenuous work when the skill of the apiarist must be directed toward changing a few thousand workers into a mighty roaring force. It is turning food into bees, and it matters little if the food is inside or out.

Pollen.—Open a typical brood-nest. Here are four combs of brood, and on either side a comb containing freshly gathered pollen. In no case shift these pollen combs. It is where the bees require it. Seldom is it necessary to feed pollen, for, with settled warm weather, the bees gather enough.

If honey is in the hive we can extract it as per the Alexander method, and feed back, or let the bees extract it, which is easier and better. Take a comb of honey; bruise it—that is, flatten it down with your spatula till your comb is level and every cell-capping broken. Place it in the center of the brood-nest, and at once the bees set to work to clean up and remove the honey, leaving a full comb nice and clean for the queen to occupy. In carrying out this work, the queen is fed more lavishly; the more the queen is fed, the greater the number of eggs, and soon she will be laying the weight of her own body in the course of twelve hours. In fourteen days this operation can be repeated, using two combs, one each side of the center comb. In fourteen days you can repeat the process, only this time your ten-frame hive can spare one comb of sealed brood and adhering nurse-bees to strengthen weak colonies. Thus the strong stocks become feeders to the weak ones; and if we reach full strength right through our apiary ahead of our harvest, new colonies can be formed. Feeding during this great activity of the colonies, much water is required, and also some feed. Take a vessel; fill it with pebbles; make your feed one pint of water to one pound of sugar, and fill the vessel. There is no fighting; but if the unexpected happens, it is easily stopped by filling up the vessel with water instead of syrup. Your feeder acts as a barometer to the various sources of nectar, for the feeder is quickly deserted for the natural source.

The method outlined means opening up the stock periodically, and feeding. Alexander reaches the same point by extracting and feeding back. The difference in the two systems is, in the first, the bees do the extracting; in the second, the apiarist does the extracting. It is for each of your readers to accept the way that best suits his locality.

Long Eaton, Eng., June 1.

SUGAR SYRUP VS. HONEY AS A WINTER FOOD.

Does it Pay to Trade Sugar Syrup for Honey?

BY LEO. E. GATELY.

Some eight years ago some bees came into my possession which the owner had intended to destroy. After removing all of the honey that was fit for table use these bees were taken home late

in the fall, and fed about half a dollar's worth of sugar to the hive. Imagine my surprise when, the following spring, they came out ahead of any thing else in the yard. In an experimental way, sugar for winter stores was tried on a fair part of our apiary the ensuing year; and the results obtained were so gratifying that, of late years, it has become a part of our system to feed every colony for winter.

When using the Langstroth hive, very little feeding was done; and for those wishing to avoid fall feeding I can recommend the Langstroth or a deep hive as being admirably adapted to that end. Situated as we are, in what one might call a rather poor locality for bees, where there is no heavy flow, but a moderate one lasting throughout the summer season, bee-keeping in such hives is unprofitable. Under such circumstances the brood-chamber will become literally jammed with the choicest honey, while supers will be left comparatively empty. It was for this reason that the necessity for changing from the Langstroth to a shallow frame became imperative.

A frame $5\frac{1}{2}$ in. deep, properly handled, will throw most of the honey into the sections, when sugar syrup can be profitably substituted for winter stores. At the current prices at which honey and sugar are being offered, there remains no question as to whether trading sugar for honey can be made to pay; at the same time, it is true that the feeding of the sugar syrup can be gone at in such a way as to be decidedly unprofitable. In order to put the practice of winter feeding upon a paying basis it is, first of all, essential that the feeding be done at such a time and in such a way that the loss in syrup while being stored be reduced to a minimum. The amount of unsealed brood that may be in the hive at the time the feeding is done will usually determine the extent to which this shrinkage will occur. I have seen as much as 50 pounds of sugar fed to a colony, in small amounts, at a time when brood-rearing was at its height, and there would be less stores in the hive at the finish than before feeding was begun, though the combs would be solid with brood in various stages of development.

While there are other causes for the loss in syr-

up while being fed, such as the condition of the colonies, atmosphere, rapidity with which it is given, density, etc., the principal factor will generally be found to lie almost wholly in the season. Too much stress can not be laid on this point, for it is the key to the whole situation. If feeding for winter be begun directly after harvest, you need not be a bit surprised if there is a loss of one-half by the time the syrup is stored and sealed. Very little feeding during the warm months will usually start the queen to laying heavily, and wax secretion will begin, even if no new comb is constructed.

Rapid feeding, I find, lessens the shrinkage in syrup fed to bees. Especially is this noticeable when feeding is done a little early in the season. Later, when the frost has stopped pollen-gathering, so egg-laying will not be started, smaller amounts may be safely given.

One other point deserves consideration; and that is, the density of syrup fed for winter stores. Regarding the shrinkage when a thin syrup is used, I can not agree with some who claim that no difference can be observed between it and that having a greater density. Too thin a syrup has at least to be worked over to a greater extent by the bees before capping, and thus becomes a further drain upon their energies, which should be conserved as much as possible at the approach of cold weather. For winter feeding we generally use a syrup containing three parts of water to four of sugar; but we

prefer a two-to-three ratio to one half-and-half. For spring feeding, the latter is about right.

Fort Smith, Ark.

[We believe it is generally considered throughout almost all bee-dom that sugar syrup as a food is superior to honey for winter. Experiments conducted over many years by our best bee-keepers have shown this beyond a question. Where the bees have a fine grade of extracted honey they will come out almost as well—so well, indeed, that it is not generally considered profitable to extract the honey and feed syrup. The cost of the labor and the loss in feeding will make up for the difference in the price secured for the honey over the sugar.]



ANOTHER SMILE THAT WON'T COME OFF.

Mr. Chalton Fowls, of Oberlin, Ohio, numbers among his customers an amateur bee keeper who has the faculty of seeing the bright side of life under adverse circumstances. This picture, sent to Mr. Fowls as a postcard, shows that it pays to "grin and bear it."

But our correspondent finds it profitable to substitute the syrup for the honey—not by extracting, if we may judge by what he writes, but by so placing the shallow frames that the honey in them will be carried into the supers, where it will be in marketable shape. If he can make the bees do the extracting, or, rather, move the honey into sections, there is no question but that it will pay to trade the sugar for the honey that was taken away in the supers. But it is not always that bees will take honey from one compartment of a hive and put it in another. A good deal depends on conditions, and on how the hive is manipulated. We shall be glad to have our correspondent tell us just how he does it, for therein, it would appear to us, is the secret of his success.

We also wish to indorse what Mr. Gately says regarding the losses that one encounters in feeding, especially when unsealed brood is in the hive. If the hive is full of old bees, say during the latter part of August, after a heavy harvest, the sugar converted into brood or young bees is not a loss, but a splendid investment. Indeed, after a colony has gone through a honey-flow it will have a lot of worn-out bees which will die off in the fall or winter; and unless there are a lot of young bees brought about by a late honey-flow or by feeding, the probabilities are that such a colony will succumb before spring. By feeding the thin honey in little dribs in the fall, there will be a large shrinkage; and if there should be a lot of young blood already in the hive, with very few old ones, such kind of feeding would, to a great extent, be unprofitable. We are now using a thick syrup, and giving it in large feeds where we only desire to supply a colony with stores; but if the colonies generally are short of young bees, then we feed to stimulate. It seems to be the verdict now that it is much more profitable to feed in the fall than in the spring.—ED.]

THE CALIFORNIA SAGE.

Some of its Enemies; Raising Queens Above Excluders.

BY M. H. MENDLESON.

Mr. Ralph Benton, of Berkeley State University, has been sent as a representative to investigate the sage-worm that is doing us so much harm here. He is competent, and doing good work. He is also experimenting in other lines of the business. Results will be published in bulletin form. Mr. Benton is teaching bee-keeping at the college, fitting young men to assist in and take charge of apiaries. Mr. Benton uses good judgment by visiting bee-keepers on this coast, getting information advantageous to his teaching. He has been making frequent trips among us. He has a fine disposition, and is capable, and is well liked at the college.

Dodder is spreading at an alarming rate among the sages and other honey-producing plants. It also does much harm in the alfalfa regions. It is a yellow fungous growth, attaching itself to the sages and other plants, and saps the life from them. It produces seed which drops to the ground and takes root (during the wet season), then attaches itself to the plants. It worries me

considerably, and I shall watch its development and general results. I have never seen so much of it as this season.

Much rust, also, is forming on the sages, turning the leaves yellow. The University professors think this rust is not harmful, but I notice that the sages are drying up wherever this rust affects it. Lack of moisture in the soil might be the cause; and cloudy, foggy, dewy nights might also affect it.

There was much frost-bitten sage this season, the frost affecting the new growth only. It then turned yellow, and new growth (after good rains came again) was checked later, from lack of sufficient moisture to develop it.

The great number of worms on the sages is remarkable. They eat to the base of the bloom and destroy the source of secretion, like the cutworm. These worms can not withstand extremes of heat from the sun's rays, and yet they can withstand a much higher temperature than the cutworm if we attempt to destroy them. The amount of heat or temperature that will destroy them will be reported later on. In the 80's they were destructive near the coast. Each season they seem to be on the increase.

All the enemies of our honey-producing plants seem to be on the increase. I think this is caused by conditions unfavorable to nectar secretion, which conditions, in turn, are favorable to their development. Cool cloudy weather is favorable to the development of the cutworm; the same for this worm. The difference is, these sage-worms are so very much smaller that they can get in the shade away from the rays of the sun.

For the past few years California has not been the great honey-producing country as of yore. Bee-keepers here are of a hopeful, persevering class; but these continuous adverse seasons are a trial to any patient person, and eventually will cause many to look for other sources of a livelihood.

For the past few weeks I have been quite successful raising many fine virgins above a queen-excluding brood-apartment, to supersede old worthless queens below; but one needs plenty of bees in the super to protect and keep cells warm. If there are insufficient bees in the super to cover cells well, then I raise up some capped brood and some advanced larvæ. There must be plenty of bees in the super, with some honey coming in, to insure success.

Heretofore I have had many fine queens raised and fertilized from the super, the old queen continuing egg-laying during the whole process—a continuous increase of bees coming on without loss of time. To me it is the best practical method to supersede old queens, and for divisions and surplus of queens for out-yards during the beginning of the season, and especially during short seasons when laying up honey for winter stores. It is a poor success when the honey-flow slackens, for then cells will not be drawn out. I am thankful to Mr. Doolittle and others for this process, with some of my own methods combined.

I had Mr. Erwin Williams, of Colorado, raise many fine queens for me one season by the combination of the Doolittle, Alley, and Atchley methods, all from the super. That season in two

of my apiaries there were about ten per cent of the colonies with two queens in a hive, and Mr. Williams had some difficulty in introducing until finding both queens.

These off seasons are the ones to supersede old stock when we can have more time to examine each individual colony properly.

Our seasons are so varied, or have been so for the past number of years, that we can not judge the future by the past. It is necessary to be prepared with one's cup right side up; consequently when good seasons approach, good results may be accomplished. It is best to have supplies on hand and made up, and protected from the vermin and the elements, even if we have to wait for the seasons of flow, providing one's means permit; otherwise it pays to do with fewer bees.

Speaking about the varied seasons in California, one year I extracted a carload of wild-sunflower honey, and also a carload from phacelia before the sages came in, but never before or since have I extracted much of either of these grades. The above bloom has since varied as to the time of its appearance.

I have noticed, with but few exceptions, that bees will not work on or gather from inferior sources when there is an abundance of the superior honey like that from the sages. In 1884 one colony out of 200 gathered exclusively from an abundance of mustard bloom; the 199 gathered from the sages. This was an exceptional extreme.

With but few exceptions these out-of-season blooms are our short seasons, or seasons of failure.

If all California bee-keepers would breed up their colonies during these seasons of partial failure they could greatly increase their profits. It is short enough as it is, and all are not able to do so.

I am now breeding from a queen whose colony has done wonders for such a bad season. It is now three stories high, and nearly full of honey, while many others are needing stores for the winter. An apiary bred up from a colony like this will produce good profitable results, and is of high value.

All California bee-keepers who have kept all weeds cut clean from their apiaries will save themselves a great deal of loss and trouble thereby. A clean apiary lets in the sun, keeps down dampness, and helps much to prevent spring dwindling. The worst-affected apiary from "tremors" I have ever seen was one shaded by weeds, and, consequently, damp. Many a fine apiary has been lost by letting the weeds grow and dry up, awaiting the destructive mountain fires during the dry season. Brush and weeds should be cleared away from the apiaries and buildings for a hundred feet or more. It pays to take time to do this.

By a clean-kept apiary many bees and an occasional queen can be kept from loss from vermin. Of course, skunks must be killed off also. They do a great deal of damage here as they are plentiful.

Much more honey can be produced by keeping obstructions to the entrances down for a good distance from colonies. To us, time is money: to bees, it is honey. It pays to be orderly. Putting things in their proper places saves time and worry when we need them. Hoes, shovels, etc., after using them, should be put away

clean and bright. They will work the smother and better, and it prolongs the life of them.

Many useful cleats and boards are wasted for want of order. If kept from under foot, and put in convenient places, it many times saves dollars when needing them. It is the cents that make the dollars. It does not pay to make a practice of piling up useful things promiscuously for future time to place. That time never comes.

When working with your bees, set your lids, supers, combs, contrivances, and tools within easy reach. Tools dropped on the ground are sometimes lost or ruined. You can do more work, and save valuable time, by saving useless steps.

It pays to watch your bees and give them proper attention at the right time. Colonies should not always be left to supersede their queens. Conditions are not the same with all colonies. I always have complete success if I am well and have time to attend to each individual colony. Many good colonies could have been saved this season if confined to space according to strength and a limited brood-apartment. It is better to have queens crowded to the limit with winter stores.

This is the season for those who are fortunate enough to have a fumigating-house. It would pay for itself many times over—that is, if one has a large number of empty combs on hand. Such combs are a boon in the following good seasons.

There will not be enough of the best honey produced in California this season for home consumption.

Ventura, Cal., June 10.

SUPERANNUATED QUEENS.

How They May be Utilized to Good Advantage in Rearing Queens; Why it is Not Best to Kill Queens on Account of Age; Conditions Under Which Two Queens Live Peaceably Together, and When Not.

BY R. BEUHNE.

[When Mr. R. Beuhne was here last spring, the plural-queen discussion was then on, or, rather, we had decided to close our columns to it for the time being. Mr. Beuhne has had a very large experience in rearing queens under the supersedure impulse, and using two queens in a hive at a time. Now that the discussion is opened temporarily we thought best to allow him to present one phase of the question that has not, so far as we remember, been exploited in these columns. It is our opinion that it will help to explain conditions when two queens will live together and when they will not. We commend this article to expert bee-keepers, who will find it of much value.—Ed.]

Fifteen years ago I made use, for the first time, of the two-queen system for raising queens. Finding two laying queens, mother and daughter, in one hive, I removed the young queen to supply a queenless stock. A month later I found another young laying queen in the same hive, as well as the old one. It then occurred to me that, if I possessed a number of such hives, I could make use of them for raising first-class queens, such as are raised under the superseding impulse.

The first requirement I found was three-year-old queens in strong colonies. By reference to the record-book I located them and supplied them with a cell, each started by the Doolittle method. In almost every instance the grafted cell was accepted and drawn down into a beauti-

ful cell from which, in due course, I got a laying queen, while in every instance the old queen was also still there. I removed the young laying queens and started another cell in each hive. I continued this until the end of the season, leaving the last young queen in the hive to winter together with the old one, which latter would, however, always be missing in spring.

This method I practiced for three or four years; but being unable in this way to get sufficient queens three years old, I next tried it with two-year-old ones, and then trouble began. In some cases the cell was not accepted; in others the newly hatched virgin would kill the laying queen; and in others, again, the bees would kill the virgin queen, and once in a while there would be a swarm when the cell was sealed. I therefore abandoned the idea of using two-year-old queens.

To save time I gave some of the colonies with three-year-old queens from three to six cells each to raise, and when these were sealed I removed all but one, giving the spare cells in cell-protectors to other like colonies, from which the young laying queen had just been removed.

To save time still further I kept the spare cells, after removal, in a super till within a day or two of hatching, when I would use them as before; but here, again, I was up against trouble, for the newly hatched virgins were nearly always thrown out or worried. Evidently the bees had not yet become aware of the absence of the young laying queen; for when I gave another cell, some days after, the virgin would be accepted.

Thus I continued till three years ago, when I succeeded in getting another queen fertilized in a super above a queen-excluder and an upper entrance by putting a sealed protected cell in the lower chamber containing the old queen, and another one in the super containing some combs of brood in all stages. Thus I got two young laying queens at the same time from a hive having a three-year-old queen, the old queen laying all the time. To succeed, it is, however, necessary that the colony be strong, and bees flying freely from the upper entrance; for in a colony of only moderate strength the virgin in the super will worry at the excluder in an effort to get below, and usually enter at the lower entrance when returning from one of her flights.

Two years ago, having some old queens to spare which I wished to keep in reserve, I introduced these in the supers of colonies with old queens below the excluder, and next gave a cell each below and above the honey-board, got a young laying queen at top and bottom as I expected.

In speaking of old queens I do not wish to be understood as meaning useless and exhausted queens, but those which at three or even four years old are still of (and sometimes above) average prolificness. Old age in a queen is a quality, not a defect. I kill many queens before they are three years old, but never because of it. If we kill all queens when two years old we can not breed for the longevity of queens, and therefore of workers, which is such an important factor in honey-production.

Another use for three-year-old queens, I find in replacing inferior or undesirable queens, particularly at times when it is difficult to introduce young laying queens, owing to robbing or cli-

matic influences. I replace the condemned queen with a three-year-old one and a week later give a sealed cell. Within a fortnight I have two laying queens. I then shift the old queen to another colony for the same purpose, and so on. During last season some of these old queens passed through six and seven hives in succession, and finally into nuclei. These old queens are always readily accepted anywhere.

For the purposes enumerated, I find the two-queen system very useful and profitable; but for the purpose of increasing the worker force and the yield of honey it is not a success in my experience. Early in spring, even a poor queen lays all the eggs the number of bees then in the hive can attend to. Later on the amount of brood raised is regulated more by the workers and the conditions of pollen and honey supply than the prolificness of the queen, provided the queen is of average capacity. If she is not, it is better to replace her than to give another queen to assist her, because her drone progeny is undesirable for breeding. Under unfavorable conditions queens lay numberless eggs which are never utilized by the bees. It is, however, possible that, under certain conditions, two queens in a hive may produce better results than one.

Tooberac, Aus.

[When Mr. Beuhne was here he made the casual remark that he could explain why it is that two queens sometimes can not be maintained in a hive, and why, under other conditions, they may live in peace. Said he, "You must have considerable difference in their ages before they will work together. The old queen must be failing, or at least three years old, before she will tolerate a younger one by her side. Of course," said he, "during the honey-flow, by use of perforated zinc, two queens of the same age can be kept in a hive; but after the harvest one of them will be missing." In the case of mother and daughter or of a young and a three-year-old queen there seems to be a sort of notion in the colony that the old queen will soon die, and whatever good she may do in egg-laying is just that much to the good. Apparently the young queen acquiesces in it—at all events, the old queen sooner or later disappears.

If this teaching or this theory is correct, it may explain a good many things in bee-hive economy that have hitherto been a little hazy.

But it seems Mr. Beuhne visited Dr. C. C. Miller, and during the course of that visit they discussed this very question. We will now let the doctor tell what he thinks of it.—Ed.]

THE EUCALYPTUS HONEY OF AUSTRALIA.

Mating Queens from a Colony that is Superseding an Old Queen.

BY DR. C. C. MILLER.

There are some bright bee-keepers in Australia, even if they do stand on their heads. I had an interesting call lately from one of the foremost—Mr. R. Beuhne. I had always pronounced his name Bu-ny, thinking of him as an Englishman; but a lingering brogue betrays his foreign

origin, even though he left Germany 25 years ago, and so his name is pronounced Boi-nay.

Mr. Beuhne is a genial and interesting talker, and I learned some things. I have always admired the persistency with which Australians seek to make a London market for their eucalyptus honey; but after having sampled it I could hardly believe that any but depraved tastes would take to it kindly. But I've changed my mind about eucalyptus honey. Mr. Beuhne kindly brought samples of half a dozen kinds, and some of them, at least, are very palatable, and I think one would come to be very fond of them.

One reason why Australian honey is almost entirely extracted, is that, about the time sections are sealed, a plant comes into bloom that they call dandelion, although it is not at all like our dandelion, and the surface of a section is discolored by this dandelion.

One feature of that country I should not like. The heat and dryness is at times intense, and grass becomes so dry that, if fire starts in it, even though short, it may run for miles. If one wishes to fire any thing like a brush-pile, he must give 48 hours' notice to neighbors, and then be responsible for any damage that may occur.

A year or so ago my brother-in-law, Ghordis Stull, hitched a horse at a post quite a distance from the bees—so great a distance that in all reason it ought to have been entirely safe. A number of bees attacked the horse savagely, stinging it about the head and neck. My wife insisted that it was because kerosene had been rubbed on the head and neck; but I hardly believed it. From what Mr. Beuhne says about kerosene as a disturber in an apiary, she was probably right. He says that, when he is about to go into an apiary, if for any reason he has occasion to move a kerosene-lamp, instead of touching it with his own fingers he gets some other member of the family to move it for him. The odor of it at a hive not only enrages the bees in that hive, but for two or three hives distant. If that be correct, it is hardly the right thing to use kerosene in lighting a smoker.

G. M. Doolittle, at the close of the harvest, advises putting a queen-cell of choice stock into any colony likely to supersede its queen, and in most cases the occupant of the cell becomes the ruling sovereign. Mr. Beuhne goes a step further. Into a colony that has a three-year-old queen, still better a four-year-old, if she has vigorous enough to keep up a fair supply of eggs he puts a queen-cell, and then when the young queen lays in company with the old queen he removes the younger queen and repeats the performance. This he has been doing for a number of years, and last year he was successful in doing so right in the middle of the harvest.

I'm not sure about it; but if I understood correctly, Mr. Beuhne does this with full colonies. Now, if this be generally successful in the hands of others, why would it not be a good thing to keep one of these aged dames in a nucleus? Would it not be more in the line of nature to have a young queen constantly superseding instead of having queenless nuclei? Is it not generally true that a nucleus freshly formed is just a little better than one that has been used for rearing one or more queens? and would not an old laying queen keep the nucleus constantly fresh?

Since Mr. Beuhne was here I've tried the thing on a small scale, only instead of a cell I've given a virgin to the nucleus. It has not been a great success. Possibly a cell is better than a hatched virgin. Possibly the old queens were too nearly played out. At any rate, so far the old or the young queen has disappeared, or both.

Somehow I'm not a great success with virgins. Others tell about a virgin killing the old queen if she gets into a strange hive. With me the virgin is taken into custody by the workers. If a young queen on her return from her wedding-trip enters the wrong hive, I am told she will kill the old queen. I once saw a young queen as she entered the wrong hive on the return from her wedding-trip, and she was promptly balled by the workers. I can have a very young virgin accepted in any colony, no matter what the age of the reigning queen, and she is kindly treated while a baby; but as soon as she begins to put on airs as an aspirant for the throne she disappears. I'm not sure but I've always failed when the queen was old; but the point I'm making is that with me the entrance of a strange virgin is not likely to endanger the queen.

This year I had an unusual case. No. 42 had a 1904 queen. I watched the case closely. May 9 I saw a virgin in the hive, and the presence of eggs showed that the old queen was present—at least had been within three days. May 22 I saw the old queen and a sealed queen-cell, but I suppose the virgin had disappeared. June 2 I saw a virgin that I suppose came from the sealed cell. June 9 I saw both queens. June 13 I clipped the younger. June 26 I was surprised to find eggs in queen-cells, and on searching I failed to find any queen present but the 1904 queen, easily recognized, not only by her old appearance but by the more distinctive fact that both wings were clipped. Poor old thing! I killed her. That young queen may have disappeared because—but that's another story.

Marengo, Ill.

THE CAUSE OF THE DIFFERENCE IN COLONIES.

BY WM. M. WHITNEY.

Mr. Editor:—Noting your comments on page 949, Aug. 1, regarding the difference in the conduct of colonies of bees under apparently quite similar circumstances, I feel like making further explanation of conditions which often exist in the spring, and which are often puzzling to bee-keepers. The case you mention, it seems to me, raises an important question, and one that should set an apiarist who is given to experimenting to investigating. Take the case as you give it in your last statement, that "there was a moderate amount of brood, a large amount of honey and plenty of storage room," unless you knew the queen to be old, which sometimes is indicated by drones being found in worker-cells (but then it would seem that there should have been an attempt at superseding), I should be more than half inclined to attribute the cause of listlessness and lack of energy to something else than a poor queen. In the case you mention, your conclusions were doubtless correct; but I venture the statement that in seven cases out of ten, as we or-

dinarily find them, the cause is something else than a poor queen. Carefully examine such a colony in early spring, and you are very likely to find the queen slim, or starved in appearance; "spring-poor" bees, most of them old; the capings of the honey hard and smooth, and about as difficult for the bees to uncap as it would be for them to gnaw through the skin of a grape or a plum. I have had just such cases, and have watched the bees digging away for dear life to get a bare living; but after giving a couple of such combs a good scratching, then putting them next to the brood, presto! the whole aspect is changed; the listlessness and apathy of the colony are gone, and activity is apparent everywhere.

This suggests stimulative feeding in early spring, which I have always practiced since learning how to do it. When there is honey enough in the hive, of course it is not necessary to feed; but scratch the old comb, which amounts to the same thing.

I have had many cases parallel to the one you mention; but I will mention one specially noted at my Kankakee yard a few years ago, that of a beautiful queen not quite a year old, but a colony dragging along last summer doing only enough to live and put in honey for winter; but the next year her colony was one of the best. The same thing was true of the granddaughter of your famous old queen the next spring after getting her. She was found in early spring, lean and off color, laying drone eggs in worker-cells, and nearly half the occupants of the hive were drones; but by carefully feeding the bees she became fat and of her usual bright color, and, besides giving me, during the summer, several queens, she gave me, by division, three colonies of bees.

This I have written up before; but some have seemed to question the accuracy of my statement; but never was statement of matter of fact more strictly true. I am thoroughly convinced, as I before stated, that in seven-tenths of the failures of colonies, excepting in cases of old queens, the fault is with the apiarist. Many a good queen has been hastily condemned and guillotined.

Evanson, Ill.

ARTIFICIAL LEVULOSE.

Why Honey is a Suitable Food for Those of Weak Digestion.

BY W. K. MORRISON.

At the present time the United States is consuming considerable quantities of artificial sugar in the form of saccharine, which is 550 times sweeter than ordinary refined sugar. In a number of countries this substance is hedged about with restrictions so that its manufacture has been greatly curtailed. In Germany there is now only one factory making saccharine, and it is now considering whether or not it will apply to the government for an indemnity and cease to exist. By careful tests made by the best doctors in Europe, this substance has been found deleterious to the human system, even in very minute quantities, either producing kidney troubles or aggravating them. It is said Dr. Wiley is in favor of suppressing saccharine, whereas President Roosevelt takes an

opposite view. One thing is clear—it is not a useful food at all, and it would do no harm to prohibit it entirely.

The readers of GLEANINGS are not kept in ignorance of the glucose controversy, but it seems we shall ere long have to reckon with a new rival to honey—namely, artificial levulose. A few of our readers may not know that honey contains dextrose and levulose in about equal proportions. Tupelo, for example, has an excess of levulose, and alfalfa an excess of dextrose; but ordinary honey contains about equal quantities of each. Levulose does not granulate as dextrose does.

Levulose is considered excellent for persons suffering from *diabetes*, or "kidney trouble," because granular sugar aggravates the disease; hence honey is the only sweet which such patients can be allowed to eat. Tupelo honey would be just the thing for these sufferers, though there are probably not a dozen doctors in this country who are aware of the fact, and yet *diabetes* is a comparatively common disease which often leads on to death.

At the international congress of the Sugar Industry held in Liverpool, in April, 1908, Mr. Sigmund Stein, the noted sugar expert, read a paper advising the manufacture of levulose on a large scale, for various reasons. It may be used for medical purposes. First, as a food for diabetics, he says:

Diabetes involves an incapacity for using carbohydrates as nourishment. More or less of the sugar which is passed with the food into the body, be it saccharose or lactose or dextrose, passes through the body and acts like a poison. Levulose is recognized by the highest medical authorities as the only sugar which most of the diabetics can partake of, and which can be entirely assimilated by the organisms. Saccharine, which is used by the diabetics at present, is harmful to such patients according to the investigations of Prof. Stoklasa and Prof. Neumann.

Second, as a preventive of hyper-acidity of the gastric juice. Unlike saccharine, levulose has the power of neutralizing the acids of the gastric juices. Third, as a food for consumptives, he says:

Within the last few years a number of well-known medical authorities have recommended the use of large quantities of levulose as a remedy against consumption in the first and second degree. According to these authorities, levulose acts in this disease like a specificum, and cures have taken place, in many cases, through the daily use of several ounces of levulose mixed with the food. Without doubt the use of levulose for this special medical purpose will be better known when levulose is manufactured and sold at about the same price as our ordinary sugar. Consumption and tuberculosis are spread, as is well known, among a seventh part of the population of most countries of Europe. Levulose once manufactured cheaply will be the sugar which the consumptives could exclusively use.

Fourth, as a food for infants:

Many medical authorities have lately recommended levulose for infants, as levulose has not the aperient effect of lactose. Medical authorities have further stated that levulose is an excellent substance for the nourishment of infants which suffer from wasting illnesses. Levulose has increased the weight of such children 300 to 400 grammes per week. Professor Fuerst stated that levulose deserves the preference over milk sugar for the nourishment of infants, because the first is sweeter and has not the aperient effect.

Fifth, in industries: In confectionery to prevent crystallization; in caramel to replace glucose and invert sugar; in preserves, in the improvement of wine, and in aerated waters.

By using inulin, extracted either from dahlia bulbs or chicory roots (dandelion might do), Mr. Stein estimates the cost of manufacture at 12 cents per lb. At present it is sold at \$1.20 per lb. At the former price he thinks there would be a great demand for it.

We think Mr. Stein is mistaken. It is an easy matter to separate out the levulose in honey, and in most cases this would not cost 12 cents per lb., particularly so in tropical countries, where honey is quite cheap. The honey of the stingless bees contains an excess of levulose, showing the natives are correct in claiming it as a first-class medicine. In the valleys of the Amazon and Orinoco great quantities of such honey could be collected with ease at a price much below 12 cents a pound. It would be far superior to inulin-levulose. Bee-keepers owe Mr. Stein a vote of thanks for proclaiming to the world the great value of levulose as a sweet for sick people; but he ought to have stated also that honey contains levulose in large amount. Moreover it is in a palatable form, which inulin-levulose would not be.

It might pay tropical bee-keepers to produce levulose, even at one-fourth the present prices.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

FUMIGATING COMB HONEY IN TIGHT STORE-BOXES; HOW TO MAKE THE BOX AIR-TIGHT.

A very convenient and inexpensive way to fumigate section honey with carbon bisulphide is to line a drygoods-box of convenient size with heavy manila paper, pasting the paper in and taking care to have the paper lie smoothly over the whole inside of the box, so that there will be absolutely no chance for leakage. Then put in the sections. This may be done by placing them in loosely or in shipping-cases, putting 16 sections in a 20-section case, and placing the shipping-case in the fumigating-box so as to allow a free circulation around every section. Now put the carbon bisulphide in saucers on top of the sections, then cover the whole with one or two heavy blankets, taking care to lay two or three sticks across each saucer to prevent the blankets from coming in contact with the bisulphide. The honey will be more thoroughly fumigated than in a room specially prepared, as the fumes are required to fill only the space actually occupied by the honey. In fine weather the box may be set out of doors or under a shed, thereby running no risk of an explosion by having the fumigation done in a house. Another advantage is that a hundred or less sections can be treated, instead of waiting for a larger quantity to save bisulphide, and by so doing run the risk of worms hatching and damaging the honey. E. MEAKER.

Auburn, N. Y.

[We desire to sanction the plan given by our correspondent. Ordinarily, it is better to make use of a tight box for fumigating rather than a whole room, for the gas can be confined better so that less of the liquid need be used. If a very large quantity of honey must be fumigated, perhaps a small tight room is better; but more often two or three tight boxes can be used more successfully.]

One advantage of the box not brought out is that the honey may be removed and a new lot put in without admitting an entire change of air

as would be the case if a room were used. By holding the breath while leaning over the box, the honey can be removed quickly. If an entire room were filled with gas, it would have to be ventilated before one could enter it to take out the honey.

So short a time as half an hour is sufficient to kill all worms; and although a somewhat longer exposure might be necessary to kill the eggs, eight or ten different lots of honey could be fumigated in a day. We have successfully used a large empty extractor-can for the purpose.—Ed.]

ARTIFICIAL BEE-PASTURAGE FOR NEW MEXICO.

We should like to know what we can get to make honey between fruit-bloom and sweet clover. The chief crops here are apples and alfalfa. The apples bloom early, and the first crop of alfalfa is cut before it blooms, which leaves practically nothing for the bees until sweet clover blooms. We are right by a 500-acre apple-orchard, and spraying was done last spring while many of the trees were in bloom, damaging us quite a lot.

Our climatic conditions here are somewhat similar to much of Colorado. The nights are quite cool until late in the spring, and there are times when we get no rain to amount to any thing for months. All farming and fruit-growing is done by irrigation. We are getting plenty of rain this fall. Apple-picking began in the big orchard Aug. 24. People come for miles—yes, a hundred miles and more—and camp outside the orchard during picking.

MRS. LUCY C. SLEASE.

Roswell, N. M., Sept. 9.

[We are not familiar enough with the locality to suggest any plant which would yield nectar between apple-bloom and alfalfa. Indeed, there are very few plants, unless they yield valuable seed or forage for stock, that it pays to set out for honey. If a locality does not furnish something naturally to intervene, the only thing the bee-keeper can do is to feed if the bees require stores. Possibly yellow sweet clover, which blooms about three weeks earlier than white sweet clover, might help out a little. Can't you grow alfalfa, or pin clover? It is fine for stock and good for bees. It does not require irrigation. If any of our subscribers in the vicinity or elsewhere can suggest any forage that has intrinsic value outside of the nectar it furnishes the bees, we shall be glad to have them do so.—Ed.]

TWO QUEENS WINTERED LOOSE IN ONE HIVE.

In the fall of 1906 I had two weak colonies. I got these colonies side by side by moving them a short distance each day. When they were close together I placed one colony on five frames in a Dadant hive which would hold ten frames and a division-board. I then put a solid division-board in the center of the hive, and the five frames containing the other colony on the other side of it, tacking screen wire on top of the brood-frames so no bees could pass from one side to the other. To keep the bees from mixing up at the entrance I fitted a board to separate the front of the hive and thus make two entrances. My object was to

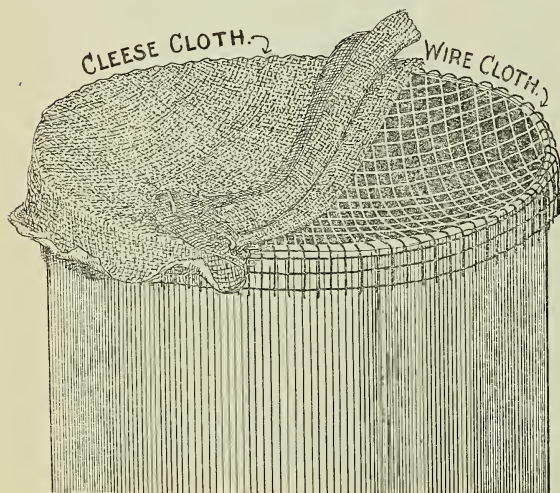
retain the natural heat. These colonies did not contain over a gallon of bees each, and they came through the winter of 1906 in fairly good condition. In April, 1907, after reading Mr. Alexander's experience with two or more queens loose in the same hive I examined this colony to see if both queens were alive. I found they were, then I removed the division-board, let them settle it in their own way, and during the summer I often found the two queens on the same side of a comb. I was highly elated over my success; but my spirits fell when Mr. Alexander said he had failed in wintering his queens. We winter our bees on their summer stand with a protection of straw or leaves about six inches thick held in place by 18-inch poultry-netting. As soon as the weather would permit this spring, which was the 25th of March, I examined this hive and found the two queens enjoying the joint parentage of as large a colony of bees as there is in Illinois.

LaHarpe, Ill.

O. A. PITTMAN.

A NEW WAY OF HOLDING A CHEESE-CLOTH STRAINER.

Several have spoken of tying cheese-cloth over the can, very tightly, to keep it from slipping down. I made a wire rack of heavy mesh wire cloth, and I hang it on top of the can. Or, if I want the strainer lower in the can, I hang it at



HAINES' METHOD OF HOLDING A CHEESE-CLOTH STRAINER.

Instead of tying the cloth around the top of the can, heavy wire cloth is used to support it.

the height desired with four wire hooks. Then I lay the cheese-cloth over the can and press it down to the wire rack, and it is always ready to use, and does not need tying. In this way it can be changed any time. G. W. HAINES.

Mayfield, N. Y.

[The arrangement for holding up the cheese-cloth we believe to be excellent. The supporting wire cloth from beneath makes it possible to remove the cheese-cloth for cleaning much more readily than when it is tied.—Ed.]

QUEENS KILLED IN MAIL-SACKS.

I am satisfied in my mind, after making experiments, that it is almost certain death to bees and queens hung up in mail-pouches to be caught by trains going 30 miles per hour or more. Could you not, through the proper channels, get the postal authorities to make a ruling that mailing-cages containing bees and queens should not be put in such pouches? E. E. LAWRENCE.

Doniphan, Mo.

[We know that queens have been injured and killed in this way; but many have received the treatment without any apparent harm. We doubt if such a ruling as you suggest could be secured. The only thing for one to do who lives at a point where mail is thrown off in this way is to direct the queen-breeder to send the queen to a post-office nearest where mail is delivered when the train is stopped.—Ed.]

HOME-MADE HIVES DURABLE; COMB HONEY WITHOUT SEPARATORS.

On page 943, A. D. Shepard, in speaking of home-made hives, says his preference is to halve the sides and ends. Now, to halve the sides is worse than useless. Halve the ends only; then nail the rabbit solid. One can nail both ways, and, if it were painted, I believe such a hive is as good as a machine-made dovetailed hive.

You say on page 952 that honey over hives having foul brood, while not fit for brood or bees to seal, is good enough to sell or eat. Is not surplus honey free from foul brood? If it is not, is it fit to eat?

I notice a great deal of discussion about using or not using separators. I do not think people make allowance enough for difference in bees. Some do finely without separators, while others would do poorly even with them. ALBERT I. MILLS.

Ignacio, Colo.

[While honey in supers over a foul-broody colony would not be apt to contain any of the dead brood, yet some of the germs that produce the disease might be found. While such germs have never been injurious to a human being, they would develop under certain conditions if the honey which contained them were fed to the brood. For this reason it is not safe to feed honey from a foul-broody hive to the bees unless it has been thoroughly boiled at least twice. The honey should be cooled very rapidly after the heating.—Ed.]

A LOUD HUMMING HEARD IN A HIVE.

The other day, as I was walking around in my little apiary, I heard a hum in one of the hives like that of a bumble-bee in an empty barrel. I could hear it 40 to 50 feet away from the hive. The hum lasted about a minute at each time for the last three or four days. I may be wrong, but I think it's the queen. M. D. BREON.

Millheim, Pa., Aug. 24.

OUR HOMES

By A. I. Root

Render therefore unto Cæsar the things which are Cæsar's, and unto God the things that are God's.—MATT. 22: 21.

Mr Root:—I have enjoyed very much your articles in GLEANINGS; and as you seem to be in the business of "helping" people, may I bring to you my problem, asking that you will please help me solve it? It is that of investing money safely. There is no one among my acquaintances to whom I care to appeal. I am one of that class of women who must earn their own living (by the way, I do it mostly by raising chickens in a small way). I have saved a few hundred dollars, and I feel that it must be placed in absolute safety, for it is all I have, and health is failing. I have thought of investing in government bonds. I wish to invest \$1000, but I have no knowledge as to this as an investment other than that it is supposed to be safe. Any information or help you may offer me will be very gratefully appreciated.

The letter above came some months ago; but it has been so much on my mind that I have just decided to make it the subject for this Home paper, omitting the name and address for obvious reasons.

In the first place I wish to thank the lady for the very high compliment she pays my poor self in thus addressing me. Under the circumstances she feels that her dollars, the hard earnings of the best part of her life, *must* be placed in absolute safety, for it is all she has. Every daily paper reminds us of the folly of keeping money hidden away somewhere. Less than a week ago a man sold some stock and gave the proceeds to his daughter to carry to the bank. During the following night a couple of demons in human form took him out of his bed and demanded the money. When he told them he had sent it to the bank by his daughter they thought it was a subterfuge, and then burned his feet with hot irons, until he will probably be crippled for life, in their endeavor to make him tell where he had hidden it. Old people and poor helpless women have been again and again cruelly tortured in just this way. What shall the people do with the money they work hard for and lay up for a rainy day? Most people say, "Put it in the bank;" and we supposed for a time that our national banks were perfectly safe. But there is a difficulty—at least there has been so far—in the way of creating banks that will be absolutely safe. I shall have to confess that I am not financier and politician enough to understand these matters. I simply know that every little while some one whom the people have trusted proves to be only a wolf in sheep's clothing; and poor widows and wash-women, and others who have worked hard and saved a little for that oft-mentioned rainy day, have found their savings for years, and perhaps for a lifetime, gone up in smoke. It is not *men* only who do these things. Mrs. Chadwick's shameless record shows that women too will ruthlessly, and seemingly without a scruple, rob and throw away the hard earnings of a multitude of poor people.

Lately it has been the fashion to commit suicide when a man found he was at the end of his string. There seems to have been a discovery—at least the prince of darkness would persuade men that it is a discovery—that one can escape the disgrace and humiliation of having it come to light that he is nothing but a traitor, by putting an end to himself. Now, I do not believe that any man or woman does escape or *can* escape

in this way. One can, perhaps, avoid meeting *face to face* the innocent victim of his treachery by shuffling off this mortal coil; but does that end it all? is the deed wiped out? God forbid. There is a good deal of complaint made because the Bible seems to teach the doctrine of endless punishment. I suggested only recently that people who commit suicide to get out of trouble are probably only jumping out of the frying-pan into the fire; and the more I think of it, the more I am convinced that no one ever escapes his responsibilities by putting an end to his life. He was a sinner before he killed himself, and he is and must be, in the natural order of things, *more* of a sinner *after* such a death than he was before. This everlasting punishment we talk about is probably the remorse or shame of having wronged and ruined his friends who trusted him, and I believe it will follow him through all eternity.

Yesterday's daily told us of a poor man who was held up by robbers, and when they found he had only ten cents and a cheap watch they pounded him all the more because they were mad at him for their poor success; and the paper stated that he would be a cripple, probably, for life, as a consequence. This illustrates the awful depravity and hellish spirit that sometimes actuates human beings. I am convinced that, if we could trace up such cases as this, we should find that the open saloons of our land are responsible for the greater part of such characters, if not all of them. When the saloons are banished entirely, such events in human history will cease to exist to a great extent, if not entirely. Now, what shall I tell this good friend of mine? and what shall I tell thousands of other good friends who read these Home papers, who have faith in my poor self? Shall I tell them to send all their money to *me* because I am honest and fully responsible while all the rest of the world is bad as—I was going to say Thomas W. Lawson; but perhaps I had better not say it. God forbid. I do not want the money, and I have no place to put it except during a part of the year when we find it convenient to borrow money at the bank, and sometimes from our friends more or less. But there ought to be some good place to put money—some place easily accessible to *every man, woman, and child*. The good woman who wrote to me speaks about government bonds. If I am correct they pay only a low rate of interest, and you can not get your money again just when you want it. As a rule, I would advise every one to put his money out at the best savings bank in his neighborhood. If you do not know just how to do this, your best way is to go to some experienced business man, a consistent member of your church, of good reputation, and get him to advise you; and let us all hope and pray that we may soon have a *postal savings bank* such as has been so much talked about.

In my last Home talk I spoke about our American flag and what it represents. Now, this American flag ought also to represent a place where every man, woman, and child who lives under and devoutly believes in that flag, can place his honest earnings, and where no power on earth can wrest it from him. This *can* be done, and it is a burning shame that it has not been done already. In old times the dear Savior reminded us of the folly of laying up treasures on earth where

thieves break through and steal. Now, with all the other wonderful things that have come true in our civilization, it seems to me it is high time for our government to provide a place for these little savings, where the rewards of toil can be put where thieves do *not* break through and steal. The government can easily do it.

A good woman, a friend of mine for more than forty years, said to me just a few days ago that there is no one thing so much needed in the United States as a safe place for the earnings of America's children. It is a great comfort to me to know that there are those in my employ who have worked for me or for our institution, if you choose, for more than forty years; and these old friends of mine have long been in the habit of entrusting me with their surplus earnings. I mentally thank God that I can honestly say, each and every one of them has always had his earnings when he called for them. Well, this particular friend of mine was, years ago, persuaded to take some of her money away from me and loan it to another party—to a minister and his wife who wanted it; and I am afraid they suggested that it was not quite as safe with A. I. Root (with his craze for developing the Home of the Honey-bees) as it would be in *their* care, and so she let them have it. This man was a minister of the gospel, but he was in other business also. By the way, I have long had a sort of feeling that ministers of the gospel ought not to be very much engaged in other kinds of business or occupation. Of course, the pastor of a church wants some kind of recreation. I would by all means let him have some chickens, a garden, and a few hives of bees; but these things should be only secondary or a side issue. One who accepts and assumes the sacred calling of one of God's ministering servants, to lift his fellow-men out of darkness into light, ought to give all his energies and strength to that one thing. I do not believe in being half preacher and half lawyer or bee-keeper or any thing else. Well, this minister of the gospel died soon after this, and his financial affairs were in a very bad condition, his estate paying only a few cents on the dollar. His life was insured for a goodly sum; but I think that none of that money was used to pay back the poor hard-working girl whom he and his wife had induced to take her scanty earnings from a safe place, and give them into their care and keeping.

Now do not get an idea, dear friends, that I am boasting. As I look back I realize that there have been several times in my life when, had I died suddenly, it would have been a hard matter to pay every one every cent that was his due. And this brings me to the special point of this Home paper. Every one of us, especially those who profess to believe in the Lord Jesus Christ, should have his affairs in such shape that his wife or friends can readily satisfy every claim, if he should be called away suddenly by accident or otherwise. At one time during the past winter one of the younger members of our firm gave me notice when I was down in Florida that we had purchased more beeswax and basswood than we ever had before. As both of these commodities would surely be wanted, they felt as if The A. I. Root Co. ought to be prepared, as we always had been before, to take at a fair price whatever was offered. Of course, we have had to

borrow at certain seasons to do this. I asked the question how much money we had borrowed to invest in these things, and what the basswood and beeswax were worth that we had in stock. The reply came that the wax and lumber carefully stowed away and fully insured amounted to more than the borrowed money; and I said, "Keep on taking what comes in through the regular channels of trade, but do not solicit any further shipments."

But a careful and substantial business firm should proceed rather cautiously in matters of this kind; for even beeswax and lumber may take a sudden drop in value; and this drop in value may make trouble. What I started out to say was that no follower of the Lord Jesus Christ should ever deliberately go into any deal or speculation that may render it impossible for him to hand over what is due at any time it may be wanted. Of course, special arrangements are often made that the money is not to be called for before a specified time; but every professing Christian should be very careful about getting into any sort of predicament, by accident or otherwise, whereby he absolutely *can not* do all that he agrees to do. The government could handle and care for the money belonging to working-people more surely than could any one single person. The best and most upright men are likely to die at any time; and, despite all precautions that can be taken, so far as I know there is no positive assurance that the children or others who take charge of the business after one's death will manage it as it was before. Unforeseen things are likely to occur. We can insure our property and our lives; but even insurance companies sometimes become bankrupt. People who fail in business often have comfortable homes that the law can not touch; but occasionally we see instances where the man who fails gives up his last copper to satisfy his creditors; and I hope that God will give me grace enough to give up my last copper and go to the poorhouse (if need be) rather than to feel that I had kept back one single cent of the honest earnings of any hard-working business man or woman.

There have been many warnings recently in the *Rural New-Yorker* and other periodicals against investing money in the various schemes and stock companies that are advertised. With the good prices that we have for all sorts of rural products—poultry, fruit, etc.—there seems to be an unusual number of people who have a little spare money to invest. But the *Rural's* advice, which I heartily second, is, do not invest your money in any of these institutions that urge you in papers to invest. And especially beware of those who tell you they can pay you a much larger interest than you can get around home. I am well aware that even our religious periodicals are giving place to such advertisements. I read one such only a few days ago, declaring that money invested with them would bring *14 per cent* sure. Have nothing to do with any such offers. I would almost advise that you stop having any paper come into your home that contains advertisements of that kind. Any honest person or institution that wants money can usually get it for 6 or 8 per cent. Of course, it makes some difference where only a small amount is wanted for a short time. Our savings banks usually pay

4 to 5 per cent; and you have a right to be suspicious of anybody who wants your money and agrees to pay you much more than the regular legal rate.

In the fore part of this paper I spoke of highway robbers; and in our large cities we have pickpockets who seem to have as little scruple in robbing women or a poor hard-working girl, perhaps a schoolma'am, as they would in robbing a man; and the writer of the letter that I have given is doubtless well aware that there are men and rascals who will resort to any hook or crook to get their hard earnings if they can find any way to do so. And let me say once more in closing, there is no one thing that is so much needed just now in this land of ours as some safe place provided by the government where every wage-earner can easily and quickly deposit his savings, and then just as easily and quickly get them back again when wanted. Let us work and pray for the speedy consummation of a postal savings bank.

"TO HIM THAT OVERCOMETH."

Brother A. I. Root:—You will kindly indulge me in a degree of familiarity in addressing you, for in the years that I have had the pleasure of reading the productions of your pencil you have come to be more than a friend to me though you know it not.

In your article for July 15, *Homes* department, I was not a little interested in your relation of experience with the mother hen—namely, the croppings of our own fallen nature not yet fully overcome. "To him that overcometh will I grant to sit with me in my throne, even as I also overcame and am set down with my Father on his throne."—Rev. 3:21.

The thought was so grand that I could not refrain from penciling it right now. The lesson from that faithful mother hen was that my well-beloved brother had not yet quite overcome the fallen nature in his conflict with one of the smallest and most harmless creatures that God had created.

Now, this is no indication that he is not one of God's chosen, for he is—only he had not yet fully overcome. To have completely overcome is one of the most glorious achievements of a redeemed soul. Try it, my brother; just let go and sweetly rest in the arms of Jesus, and then you can smile at Satan's rage or even the mother biddy that was so true to her own mother instinct formed within her by our own common Creator.

Now, if I were to want a mother chicken I would give much for this one, or a setting of her eggs, for she certainly is of royal blood.

Now, my brother, I know I am no better than you, nor do I believe I am half as good; but to me it appears I could not but have caressed that little princess of a hen and greatly admired her; further, have cozily wrapped her within a sack or something else until I could have gathered her little group into her retreat and then set her at liberty. But enough of what I would have done. Do you know the teachings of our Savior about love and mercy are as applicable on our part to the lower animals, since there is no appeal from our arbitrary rule over them, and therefore that, when any of the animals rebel against us, they can not understand God's law of love except by our example—"When thou art reviled, revile not again"? Therefore, because of our knowledge of this law and of their ignorance it is binding on us and not on them.

I once saw an example which I shall never forget. I was traveling in Iowa by private conveyance, and stopped over night with a well-to-do farmer. Every thing was in good style and on a rather large scale. Early in the morning I was up to visit with him his estate. We went directly to a large barnyard. In this yard were all the domestic animals, it appeared to me, that I had ever seen in my life, and, stranger yet, they all huddled together, or were not separated, and yet were quiet and showed a spirit of kindness that was universal with all. But the best of all the show was when the owner opened the gate and entered their midst. It was an apparent signal for a "love-feast," especially by each animal toward its owner. The horses and young colts, the cows and younger cattle, the pigs and sheep and poultry of every description—turkeys, geese, ducks, and chickens vied with each other in getting within reach of him, or in licking his hand or in hearing his kind voice of love. He moved as quietly and carefully as possible so as not to step on any poultry which were young. As he proceeded to feed and care for them he was especially easy to notice the trust and love between some of the colts or horses that excelled, apparently, a passing circus.

Now, if mankind were all filled with this spirit to the exclusion of any others, what a change, since, by nature, especially

among the domestic animals, this spirit of trust and obedience is universal! for God has so created them. If man, instead of his fallen nature, could thus be filled with the spirit of our meek and lowly Savior, how many vicious horses would we have?

I had a favorite horse from her colthood, that was not of the mildest disposition; but with me all through its life it is as gentle and kind as a lamb. In my absence for a few days she becomes imbued with the spirit of her driver.

Had I not known you so intimately as it appears to me I do in reading every word of *Our Homes* I would not impose on you by writing these lines; but remember that two months ago I had the misfortune to have one of my legs so badly broken that I shall probably never walk again except with crutches, and especially as my fourscore years are already numbered, and my general health is also poor from indigestion; so you see I am several years your senior. This is my apology for being so tied up in addressing you, besides my desire for congenial companionship. While here in bed on my back I can write with my pencil, for I can not stand nor sit at my desk.

Let's I forget it, I wish to say that, a few moments ago, my eye caught in our daily paper an item or two which I clipped and will insert with this letter. I know you are acquainted with our Dr. Chapman, who is always so successful in all of the good works he undertakes. We fondly hope he will succeed in this also. The race-track is only about one mile from our home here in Monrovia.

I have often wished I might have met you in our boyhood, for I believe we were near neighbors in those days. My birthplace was at Chagrin Falls, in 1830, although I have lived in Portage and Geauga counties. I was a successful bee-keeper in my boyhood in Bainbridge; but for only a brief time. My success always followed me in after years.

I want to tell you of a most wonderful pullet I had at my home in my boyhood days. It was of a wild disposition, making her nest far away in the forest. She would hatch every egg, and bring the chicks home when of quite good size. At home, however, she was as tame as the others. One of her most wonderful exploits (which I saw) was her hot pursuit of a hawk that had one of her chicks. She was in close pursuit on the wing, high in the heavens, still pursuing when I lost sight of her and the hawk. Like yours she was a "princess," and by me highly respected.

P. G. CARTER.

Monrovia, Cal., July 22.

Many thanks, dear brother, for pointing out to me that beautiful and inspiring text from the book of Revelation. Why, it fairly made my heart bound when your letter called my attention to that wonderful promise. Yes, it is indeed true that, when we exercise self-control and overcome a disposition of anger or impatience which we happen to have toward even the dumb brutes, we are preparing ourselves to sit down eventually with the great Father in his throne. It seems almost too much to believe; but, dear friend, I think you have got it, all right. It is a long slow voyage that we are making in that trip from earth to heaven; and the hills we have to climb up, perhaps slowly and painfully, are right along in the line of *overcoming*, as you describe it. And this reminds me that I have had *still another* experience with that sitting hen. I am not quite ready yet to call her "princess," just as you do; but perhaps you are right about it.

Let me explain that I have had wonderful success this summer in setting hens. Three, to which were given thirteen eggs each, brought out twelve chickens each, and they all have twelve apiece yet. Well, when the last one came off I let her go off into the wet grass one morning when they were only about three days old. She came back with only eleven. I started off to where she had been, with a feeling something like that expressed in that old hymn entitled "The Ninety and Nine." But I had to give it up till I remembered that a little further, in that particular direction, there was that same "fighting mother" with her half-grown chicks; and, sure enough, I found that her clucking had misled my one "lost sheep." I found him on a little rise of ground, chirping for his mother as loudly as his little lungs would permit. Now, please

note that this "princess," as you call her, would not own him, nor have any thing to do with him; neither would he follow her nor have any thing to do with her; but when I hurried to pick him up and carry him back to the "ninety and nine," to his own mother, this *princess* took it into her head that *she* was called on to interfere. She flew up in my face, and scratched my hands again until I actually forgot my Home paper and your wonderful text. Yes, I forgot it all for just a little time. I think that, very likely, under the smarting of her claws, I said, "Look here, old lady, this chicken is not yours, and you would not have any thing to do with it when I came around, and *you know it*. If I get hold of you *this* time you will *remember* it—see if you don't." To tell the truth, I was actually grabbing after her while she was viciously scratching, before I remembered about the Home paper and "overcoming." I did not succeed in getting hold of her, as she was too sly. But I felt guilty, and greatly ashamed of myself to think she had once *more* stirred up angry feelings. Dear brother, I am afraid it will be a *long time* yet before I can just "let go," as you express it, and "smile at Satan's" efforts. Yes, I know what a Christlike spirit we ought to show to the domestic animals; and I know, too, that it would pay *big* in *dollars and cents*. The man who gets mad at a sitting hen never ought to succeed with poultry.

When I looked at that newspaper clipping you sent, telling about Dr. Chapman, who defied the millionaire gamblers, and completely routed them, I was wondering if it could be the Dr. Chapman who is the author of the Stainless Flag; but his picture in that same newspaper clipping verifies it. May God be praised that our aged brother, "Father Eloquent," as they call him, in his advanced years is able to take up and carry out so many different lines of reform work.

Friend C., why in the world did *you* not raise a lot of chickens from that wonderful pullet? That is just what I did down in Florida; and what I am doing now is to test thoroughly the two cockerels that I am going to take with me to Florida next November. One of these is father of all of these broods of chickens where I am getting twelve chicks right along from only thirteen eggs, and the *whole* thirteen from *one* mother.

HEALTH NOTES

"THE BOOK OF WHEAT."

Well, we have now got a book of almost 400 pages, all about wheat and nothing else. It is wheat from beginning to end. The pictures (and there are hundreds of them) are all about wheat or something to do with it. Even if Abraham Adams did swindle a good lot of us with his story about that one head of wheat away off in Alaska he has probably done us some good by turning the attention of the whole wide world in the direction of new and different kinds of wheat in a way it has never been done before. Well, I am greatly interested in wheat just now—much more than ever before. This book, on p. 286, says, "Bread is the oldest and most important product made from wheat. It supports life bet-

ter than any other single food except milk, and it is the most staple food of modern civilization."

Now, that hits me, because I am eating wheat more than any thing else, morning, noon, and night. But I do not wait to have it made into bread; and the next thing to wheat for my daily *menu* is milk, mentioned in the above quotation. Only two hours ago I said to Mrs. Root, "Why, Sue, you did not tell me when dinner was ready."

"Well, my dear husband, the way you are living nowadays, dinner is *always* ready; and if you happen to be busy, and do not come exactly on time, it does not matter, for your dinner never gets cold."

Now, there are several lessons in the above little incident. It is true my dinner never gets cold, and I do not know but Mrs. Root is feeling a little bit lost because she does not have to get breakfast, dinner, and supper for her husband three times a day, as she has done all her life. And another important truth comes in right here: I do not get faint, famished, and used up, as I used to do, and tempted to feel cross if dinner is not ready just on the minute. I must confess to being incredulous, as Terry has expressed it, that so small an amount of food should give so much strength.

Perhaps I should explain that wheat is not the only grain I use. I have the shredded biscuit I mentioned; then I have puffed rice, and, for variety, grape nuts—another preparation of grain. And besides the milk I have an egg in the morning. But my principal diet day after day is wheat, and this is why I am interested in this wheat book. The book is by Peter T. Dondlinger, Ph.D., Professor of Political and Social Science in Yale University.

The government at Washington has tested more than a thousand varieties of wheat; and our Ohio Experiment Station, Wooster, tests every year between 100 and 200 varieties. Besides these tests of new varieties of grain there have been ever so many tests of different fertilizers now on the market for growing wheat. I find by this new book that the Miracle or Alaska wheat has been known and tested repeatedly for years past. It belongs to a particular class. It is mostly used for making macaroni and other pastes. Where it is mixed with other flours it is sold largely in French markets.

A single grain of wheat can be made to produce 300 grains in a year. In ten years, one grain of wheat in North Dakota actually produced 300,000 bushels. A thousand acres of land at South Walla Walla, Washington, yielded 51,000 bushels in 1881. This yield was carefully measured, and reported to the Department of Agriculture, Washington, where they said it was the largest yield for 1000 acres ever reported.

This book considers wheat-growing, not only in the great wheat regions of the North, but on almost every spot on earth. It tells us all about insect enemies, and discusses the market, and has a long chapter and a tremendous protest against gambling in wheat. It has also considerable to say in regard to "ready-to-eat" wheat foods, including shredded-wheat biscuit, granose flakes, and the breakfast-food industry, started at Battle Creek, Michigan, and also something about grape nuts. Why, even a hasty perusal of the

book has given me the fever, even in my old age, to try my hand once more on wheat-growing.

The book is published by The O. Judd Co., New York; price \$2.00. It can be mailed from this office.

SHREDDED-WHEAT BISCUIT, GRAPE NUTS, AND OTHER SIMILAR "READY-TO-EAT" CEREALS.

While I am on this subject of wheat, let me add the following, as an illustration of the magnitude of the manufacture of "ready to eat" wheat foods:

This book tells us that the plant where shredded wheat is manufactured at Niagara Falls covers 5½ acres; and the total cost of the buildings and equipment was something like two millions of dollars. Again, the capital employed by the Postum Cereal Co. is five millions. The expenditure for advertising is one million dollars a year. Now, I am fully satisfied that the introduction of these cereal foods has been a blessing to humanity; but at the same time there would, no doubt, be a great saving in money if the farmer who grows the wheat could put this same wheat right on his table, thus saving the expense of the "middleman," passing it through a factory, and asking the consumer to pay for a decorated pasteboard package. All that is necessary to make the wheat ready for the table is to clean it from all trash, and then crush it by means of rollers or something else so it may be masticated as readily as the Pettijohn rolled wheat which we find at the groceries. Perhaps a majority of mankind will still prefer to buy it as it is needed, at the nearest corner grocery, even though we do pay somebody a pretty large profit for doing the work for us.

POULTRY DEPARTMENT

"PROGRESSIVE POULTRY CULTURE;" SOMETHING ABOUT POULTRY-BOOKS IN GENERAL.

On page 1179 Prof. Cook gives this book an excellent write-up; and while I agree, after a careful perusal, that it is one of the best poultry-books we have, *so far as it goes*, I hope both the author and my good friend Cook will excuse me for giving it as my opinion that the book is *not* strictly up to date. It is a scholarly work, and the statements are all true; but it is of the "sin of omission" that I wish to complain. Now, my criticism of this book will apply to a great number of other poultry-books. The author, like Prof. Cook himself, has evidently not been reading our poultry-journals and keeping in touch with the great improvements and new inventions that have been going on. Yes, some of these inventions are not new *and* true, but neither new *nor* true, I admit; but still our up-to-date poultry-books should discuss them and help us to sift the wheat from the chaff. In the first place, I could not find any mention of the trap nest; of Hogan's \$10.00 secret or the Potter \$1.00 secret. I do not find any thing about hens that lay from 200 to 300 eggs a year. These secrets are advertised in the poultry-journals all over the world; and

hard-working people are paying out their hard-earned money for them—yes, and even after the so-called secrets have been published and given to the world—see GLEANINGS for Jan. 1, p. 43. Our poultry-journals may be excused in some degree for keeping silent in regard to this matter, because of the advertising they get so long as they do not expose the frauds; but not so with a book. I find also no mention of sprouted oats, and yet the journals all over our land are still advertising the \$5.00 book that contains a secret for making the very best poultry feed for ten cents a bushel. Our Ohio experiment station, as you may remember, have agreed to test this matter, and see if one bushel of oats really will, when sprouted, go as far as four bushels fed dry. Why does not this book or other books tell us the truth about a matter like this? The author of this \$5.00 book claims he has sold several thousand copies, and his customers are *all satisfied*. Neither do I find the matter considered of germless eggs, as recently mentioned in this journal and the *Rural New-Yorker*.^{*} A very brief mention is made of "curtain-front houses," "day-old chicks," and "hopper feeding." But there is no picture given of an up-to-date hopper arranged so the poultry will not waste the feed and keep out rats and mice,[†] etc., and no recognition of the large establishments that are now shipping day-old chicks successfully by the *hundred thousand* and sending them hundreds of miles. Nor is a word said about the "fireless brooder," as now advertised by several establishments; and yet I am fully satisfied that there is no need of a lamp, or of artificial heat of any kind, for a brooder, either in California or Florida; and some claim that no artificial heat is needed here in Ohio, especially where one has forty or fifty chicks or more to keep up the animal heat.

I know by experience that it is a great task to review even hastily the principal poultry-journals now published in the United States; but a man who writes a poultry-book surely ought to take the time to do it if he wants his book to give a glimpse of what is now going on in the poultry world. I am glad to say the book is beautifully bound, and well printed on nice paper; and I do not find a single statement in it, from beginning to end, that I should consider erroneous or misleading. We can mail the book from this office.

^{*}We are told by the *Farmer's Guide* that the Geneva Experiment Station publishes a bulletin in regard to careful experiments in keeping the males from the laying pullets. Below is a brief extract summing up the results:

"A pen of pullets, kept without a male, produced eggs at about 30 per cent less cost than an exactly similar pen with which a cockerel was kept. Another pen without a male gave during the first three months about the same proportionate excess of product over an exactly similar pen with which a cockerel was kept."^{**} In each of the two pens without male birds some pullets had begun to lay from one to two months earlier than any in the corresponding pens in which male birds were kept."

If the above is true, farmers and other poultry-keepers throughout our land are losing large sums of money by letting useless males run at large. Not only better eggs, but ever so many more of them, can be secured by promptly disposing of these surplus males; and yet how many poultry-books even mention this exceedingly important matter?

[†]Friend Cook mentions the excellent index. In that index we find, "Feed-hoppers, 208." On turning to that page I find the following: "Feed-hoppers of metal or wood may be hung against the wall of the room." No picture of an up-to-date feed-hopper in the whole book, and no other mention of how feed-hoppers should be constructed, do I find.

THE BEST POULTRY-BOOK AND POULTRY-JOURNAL.

While I am on this subject, the following comes to hand:

The A. I. Root Co.—What is the best book on poultry-raising? and which is the best poultry-journal? Ask A. I. Root how he keeps the red mites out of his hen-house.

Walton, N. Y.

H. C. MCKENZIE.

Friend M., although I have a small library of poultry-books, and nearly all the poultry-journals coming every day, I can not answer your question definitely. There is no book that I know of, or poultry-journal either, that makes it a business of exposing the frauds that are advertised in almost every poultry-journal published. I am pained and shamed to say this. Our agricultural periodicals in their poultry departments are telling people what to buy and what not to buy; but the poultry-journals, almost without exception, advertise every thing, and in their reading-notices recommend every thing that their advertisers offer. If I am doing some journal wrong, will some good friend set me right?

In regard to red mites, they have not been on my fowls, and I have never seen any, either in Florida or here in Ohio; but for fear they might come I have just had my new scratching-house painted inside and out with carbolineum; and this was done before putting on the outside building-paper. I did this because both the *Rural New-Yorker* and the *Country Gentleman* recommended it to keep vermin out of the house. Prevention is better than cure, you know. This substance is also a preservative of wood, and it is doubtless worth all it costs, aside from keeping out insects and rats and mice. Below is what one of the friends says of it:

I see one man asks how to keep mice and rats away from hoppers. Have them write to Carbolineum Wood-preserving Co., 349 West Broadway, New York, and get Bulletin 26. All they have to do is to paint the hopper and the vermin will stay away. It will kill hen-lice, and one painting will last for two or three years. It is fine to keep away ants as well as many other things.

Chatham, N. Y., Sept. 7.

P. L. CALLENDER.

STILL ONE MORE "WONDERFUL SECRET."

We copy the following from the advertising department of the *Poultry Review*:

MY DISCOVERY OF A PRINCIPLE REGARDING BROODING CONDITIONS WILL ENABLE YOU

1. To convert something which you are now throwing away, and getting absolutely no benefit from, into profit.

How can you stop this waste if you don't know about it?

2. Make a brooder, without any cash outlay, and with only about one-half hour of your time. Isn't it worth investigating?

3. Produce results which can never be approached in the number and quality of chicks raised by any other method.

Is this not very desirable?

4. Raise them with less heat, time, space, labor, feed, money, and worry. Why not "get next" to this?

IT IS NEW, ECONOMICAL, LUCRATIVE, AND PRACTICAL. WHAT IT IS NOT.

It is not merely a slight variation from the principles used in other brooders, nor is it a different method of applying the same principles used in other brooders. Neither is it a "fireless brooder."

WHAT IS IT?

It is a principle very simple yet wonderful in its results. This principle is a radical departure from that employed in any other brooder. It is a principle which was never before thought of or used in brooder construction.

I am asking only 50 cents for this discovery, which is a very small fraction of its actual value to you. In view of the above facts, it is folly for you to be without this great boon to the poultry-raiser; in fact, BUSINESS ECONOMY demands that you know it. This is YOUR OPPORTUNITY. Grasp it NOW. I have no fixtures to sell. Address

STANLEY SMITH, Bloomington, Indiana.

Most of our readers probably know that I have been wasting money and throwing it away for

years back in trying to get something really valuable that has been advertised to be sold as a secret. I commenced first by buying recipes for making artificial honey, and then I got a mania, as you may know, for investing in all kinds of secrets, from 25 cents up to \$10.00; but so far as I can recollect just now I have never yet succeeded in getting any thing new and valuable; but each new advertisement like the above, for instance, inspires me with new hope. I am of a hopeful disposition, you know; and, besides, I am just now greatly interested in all sorts of brooders. Please notice the above advertisement says, "It is a principle never before thought of or used in brooder construction."

Here is what I got for my 50 cents—a very poorly printed pamphlet containing three pages, and no illustrations whatever; and after reading it many times over I could not construct such a brooder as he tries to describe for the life of me. His "discovery," when boiled down, amounts to this: When you make a brooder to be heated by a lamp, instead of carefully carrying off the fumes from the kerosene-lamp just carry the fumes, heat and all, right on the chickens. It not only will not hurt them, but it will do them good. The carbon dioxide, a product of combustion, is just what the chickens need. This is what Mr. Stanley Smith has discovered—that is, he *claims* it is his discovery. But in the proceedings of the Poultry Institute, of Ontario, Canada, held last February, there is quite a chapter on this carbon-dioxide business, and I quote from page 9 of the bulletin as follows:

Lamp-fumes were applied to one machine in this way: We set two machines, side by side, and from the lamp of one we led a tube right into the egg-chamber of the other so that all the fumes that were formed from the first machine were passed into the egg-chamber of the second machine, and we got a great deal of carbon dioxide in that way.

This bulletin tells us that they got better results when the fumes of the lamp are run directly into the incubator. They were induced to try this because they found that a sitting hen gives off from her body a considerable quantity of carbon dioxide. On page 11 we quote again:

A MEMBER.—Is carbon dioxide that comes from the fumes of a lamp the same as comes from the hen?

PROF. HARCOURT.—There can be only one kind of pure carbon dioxide. It is all the same.

Furthermore, home-made brooders have been warmed by kerosene-lamps for years past, by hundreds of people; and to my knowledge a good many have warmed up the chicks by letting the top of the lamp chimney go right in among them. In fact, I sent 50 cents some time ago for directions for making a home-made brooder; but I never made any use of it because I did not like the idea of warming the chicks directly with the products of combustion. Experiments in Ontario, however, as well as those of Mr. Smith, would indicate that we need not take the precaution to get rid of the fumes from the lamp, either for an incubator or a brooder; but so far as I am concerned I think I prefer the fireless brooder without any lamp at all, especially in a warm climate or at a season of the year when we are not having cold weather.

GLEANINGS is a very valuable paper in all respects. The first I read of every number is the Temperance matter, Our Homes, and then about bees, honey, etc. God bless our old friend Root.

Tacoma, Wash., Sept. 8.

E. O. TEFFRE.



The Rochester Radiator will
SAVE HALF YOUR FUEL
 or give you double the amount of heat from the same fuel, if you will give it a trial, or we will refund the money paid for it. Write for Booklet on heating homes.
ROCHESTER RADIATOR CO.
 50 Furnace St., Rochester, N.Y.

Prices from
\$2 to \$12

For hard or
 Soft Coal
 wood or gas

Fits any
 Stove or
 Furnace

15 Cents a Rod

For a 22-inch Hog Fence; 16¢ for 26-inch; 13¢ for 31-inch; 22 1-2¢ for 34-inch; 27¢ for a 47-inch Farm Fence. 50-inch Poultry Fence 37¢. Lowest prices ever made. **Sold on 30 days trial.** Catalog free. Write for it today.
KITSELMAN BROS.,
 Box 21, MUNCIE, IND.

TWO MONEY MAKERS

SCARFF'S SMALL FRUITS

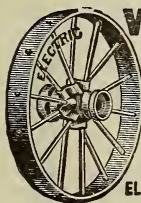
and bees are an ideal combination for bee-keepers or farmers. Order early and plant a generous quantity of these fruits. The bees pollinize them, making them produce in luxurious abundance, and at the same time increase amount and value of honey.
3 Blackberry Bushes Free. I want to prove how well-rooted, strong and vigorous my plants are. I will send free 3 fine blackberry plants, if you write for my new 1908 free catalog. Some of my customers are making over \$350 an acre with my plants. With bees you can increase that profit considerably. I sell a large variety of nursery stock, grown on an 800 acre farm. Write me to-day.
W. N. SCARFF, New Carlisle, Ohio

Grow Mushrooms

For Big and Quick Profits
 Or For Your Own Use.

Ten years' experience enables me to give practical instructions worth many dollars to you without interfering with regular occupation, no matter where located. Send for Free Book and particulars how to start, etc.
JACKSON MUSHROOM FARM
 Dept. 311, 3243 N. Western Ave., Chicago, Ill.

CUTS USED IN THIS MAGAZINE
 ARE FROM
THE MUGLER ENGRAVING CO.
MUGLER BLDG. CLEVELAND, OHIO.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

THE "BEST" LIGHT
 A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.
THE BEST LIGHT CO.
 306 E. 5th St., Canton, Ohio
MAKES AND BURNS ITS OWN GAS



DON'T WORRY OVER MONEY MATTERS but send for sample copy of Inland Poultry Journal and let us tell you how to make money out of poultry. Two full pages in colors, reproductions from oil paintings that cost us \$1000.00. They are FREE.

Inland Poultry Journal Company
 15 Cord Building, Indianapolis, Ind



WE SHIP ON APPROVAL

without a cent deposit, prepay the freight and allow **10 DAYS FREE TRIAL**

IT ONLY COSTS one cent to learn our unheard of prices and marvelous offers on highest grade 1909 model bicycles.

FACTORY PRICES Do not buy a bicycle or a pair of tires from anyone at any price until you write for our large A-C Catalog and learn our wonderful proposition on first sample bicycle going to your town.

RIDER AGENTS everywhere are making big money exhibiting and selling our bicycles.

We Sell cheaper than any other factory.

Tires, Coaster-Brakes, single wheels, parts, repairs and sundries at half usual prices.

Do Not Wait; write today for our special offer.

MEAD CYCLE CO., Dept S113, CHICAGO

FIX YOUR ROOF

5c Per Square.—We will guarantee to put any old leaky, worn-out, rusty, tin, iron, steel, paper, felt or shingle roof in perfect condition, and keep it in perfect condition for 5c per square per year.

Roof-Fix The Perfect Roof Preserver, makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our free roofing book tells all about it. Write for it today.
The Anderson Manufacturing Co., Dept. 24 Elyria, Ohio.



GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER

10 Days Free Trial. No money in advance.

cuts all kinds of bone, with adhering meat and gristle, easy, fast and fine. Automatic feed, open hopper, never clogs. Catlg free.

F. W. MANN CO., Box 37, Millford, Mass.

C. H. W. WEBER

===== HEADQUARTERS FOR =====

BEE SUPPLIES

DISTRIBUTOR OF

ROOT'S GOODS EXCLUSIVELY
AT ROOT'S FACTORY PRICES

NO CHARGE TO DEPOTS
FOR DRAYAGE.

HONEY WANTED.

Fancy white clover, EXTRACTED
HONEY. State how it is put up, and
price expected delivered in Cincinnati.

C. H. W. WEBER

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

CINCINNATI,

..

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..

OHIO

UDO TOEPPERWEIN

W. M. MAYFIELD

THE BEE-KEEPERS' Headquarters for the Southwest

TexasOld MexicoNew Mexico

WE NOW HAVE ON HAND
AN IMMENSE STOCK OF HONEY-CANS
(13,000 cases)

Weed's New-process Foundation

We make it right here from a new set of machinery. At present our factory is running nights, as well as in daytime, to keep up with orders. Still we can take immediate care of your order when it comes, as you certainly want the best. Keep out of trouble and get the very best foundation money can buy. We have it here—made in San Antonio.

Plenty of Shipping-cases

12-in. 4-row shipping-cases with 3-in. glass . . .	\$17.00 per 100
9½-in. 4-row shipping-cases with 3-in. glass . . .	15.00 per 100
10-in. 2-row shipping-cases with 3-in. glass . . .	9.35 per 100
6½-in. 3-row shipping-cases with 3-in. glass . . .	9.80 per 100
7½-in. 3 row shipping-cases with 3-in. glass . . .	10.70 per 100

A large warehouse of Root's Bee-supplies

Sold at Root's factory prices. Write us with regard to your wants. Catalog for the asking. If you have mislaid it, send for another.

Honey and Beeswax Wanted

We are always in the market for honey and beeswax in large or small lots. Beeswax, 25 cts. cash; in trade, 28 cts.

Whenever you are in San Antonio make our office your office, and let us show you through our plant. Stay here awhile and meet the bee-keepers as they come in. You are always welcome and will be courteously treated.

TOEPPERWEIN & MAYFIELD
1322 SOUTH FLORES ST. SAN ANTONIO, TEXAS

WHAT'S THE USE OF HAVING FINE HONEY IF IT IS IN POOR PACKAGES?

If you are among the fortunate ones who have secured a good crop of honey, surely you will not be so unbusinesslike as to sell it in second-hand or inferior cases. Your honey will sell far easier in nice new cases or tins. **WE HAVE THEM.**

John Nebel & Son Supply Co., High Hill, Mont. Co., Mo.

1884

1908

Root's Goods always in stock

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . .

J. M. Jenkins

Wetumpka, : : Alabama

SAVE EXPRESS! by ordering
SAVE FREIGHT! your supplies
SAVE TIME! in **Boston**

H. H. JEPSON,
182 Friend St. Phone Haymarket 1489-1

A FULL LINE of Bee-keepers' Supplies. My patent Section-machine at half-price. A new queen-nursery and queen-rearing outfit. Queens from imported Italians, Caucasians, Carniolans; and Adel queens. Send for catalog and price list. **Chas. Mondeng,** 160 Newton Ave. N. **Minneapolis, Minn.**

ITALIAN QUEENS



Fine 3 and 5 banded queens till Nov. 15, untested, only 60c or \$6.00 a doz.; extra fine queen, \$1; tested, \$1.25. Full colonies in 3-fr. hive with queen, \$5.50; 3-fr. nucleus with queen, \$2.75. Safe arrival guaranteed. Directions to introduce go with queen. Price list free.

J. L. FAJEN, ALMA, MO.

CARNIOLAN, BANAT, AND CAUCASIAN QUEENS

Home-bred, \$1.00 each; five at 80c each; Imported, \$4.00 each. **FRANK BENTON,** Box 17, WASHINGTON, D. C.

Taylor's Strain of Italians IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 19 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or \$8.00 a dozen; tested, \$1.00 each, or \$10.00 a dozen; select tested, \$1.50 each. Breed-ers, the very best, from \$3.00 to \$5.00 each. We sell nuclei in full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to **J. W. TAYLOR & SON, Beeville, Bee County, Texas.**

PATENTS.

Twenty-five Years' Practice.

CHARLES J. WILLIAMSON,

Second Nat'l Bank Bldg. Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.



Queens

**Colden and
three-banded.**

Wurth's queens take the lead every where; have 600 queens; can send by return mail; untested, 60 cts. each. Send for circular.

DANIEL WURTH, Rt 3, Fayetteville, Ark.

Queens ITALIAN Queens BY RETURN MAIL.

Untested, 60 cts. each; 6 for \$3.25; tested, \$1.00 each; 6 for \$4.75. 150 colonies of bees for sale. Write for prices.

E. A. SIMMONS, GREENVILLE, ALA.



FOR SALE.—It will pay to get our special proposition
A. G. WOODMAN & CO., Grand Rapids, Mich.

QUEENS

And nothing but Italians. An improved superior strain is what QUIRIN-THE-QUEEN-BREEDER raises. Stock is Northern-bred and hardy—not a single colony lost during the past winter; have five yards, all wintered on summer stands. Am now taking off supers of nice white-capped clover honey. Prices of bees and queens as per below:

Prices of Queens after July 1.	1	6	12
Select queens	\$ 75	\$4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		

All queens now go by return mail Safe arrival and pure mating guaranteed. We employ 400 to 500 swarms. Can furnish bees on L. or Danz. frames. Add price of whatever queen is wanted to nuclei or colony. No order too large, and none too small. Over 20 years a queen-breeder. Address all orders to

Hurry in your orders as this is the last time this ad. will appear for this season.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

5000 QUEENS

of the famous 3-banded LONG-TONGUE RED-CLOVER STRAIN OF ITALIAN BEES is what I want to sell this season

My bees GATHER HONEY if there is any to get; ARE LITTLE inclined to swarm and sting; they please such people as The A. I. Root Co. R. F. Holtermann, W. Z. Hutchinson Morley Pettit etc., and if they don't please you send in your kick.

Queens of all grades now ready.

	1	6	12
Untested queens	\$1 00	\$5 00	\$9 00
Select untested queens	1 25	6 00	11 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	11 00	20 00
Breeders \$5 00 to \$7 00			

W. O. VICTOR (Queen Specialist), Hondo, Tex.

25 PER CENT REDUCTION.

Here is your chance to save money on getting a lot of the best queens cheap. Introduce LAW'S queens this fall and thus insure a full crop of honey the coming season.

LAW'S queens are sent everywhere, and everywhere there are words of praise for them.

One firm alone has bought over three thousand of the LAW'S queens during the past three seasons.

Deduct 25 per cent from the following prices; remit the balance, and your order will have prompt attention.

Single queen, \$1.00; six for \$5.00. dozen for \$12.00.

W. H. LAWS, Beeville, Bee Co., Texas

Long tongued

Red-clover Queens

Bred by their Originator

Do you want to get some specimen queens of the world-famous red-clover stock of Italian bees? Then buy from me, because I am the originator, and surely ought to know how to breed them in their purity. When you get them from me you know you have the real strain. For years I have devoted time and skill to this stock, trying to reach perfection. I can submit many splendid testimonials in favor of this stock to show my work has not been in vain. Try them, and YOU will be pleased also. I endeavor to please the practical man looking for definite results in dollars and cents. Many years' experience as head apiarist of The A. I. Root Co. enables me to fill the most exacting order with complete satisfaction to the purchaser. Let me show you how well I can please you.

Prices

	1	6
Untested queen	Before October 30, \$1 00	\$ 5 00
Select untested queen	"	1 25 6 00
Tested queen	"	2 00 10 00
Select tested queen	"	3 00 15 00
Breeding queen	"	5 00
Select breeding queens	"	7 50
Extra select	1 yr. old	10 00

F. J. Wardell

Uhrichsville, Ohio, U. S. A.



NOW IS THE TIME

to buy your queens for fall increase. I can mail promptly young vigorous queens—Italian, Carniolan, Banat, and golden. Prices, untested, 75 cts.; \$8.00 per dozen; tested, \$1.25 each; \$12.00 per dozen.

Circular free.

Grant Anderson, S. Binal, Tex.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says, "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

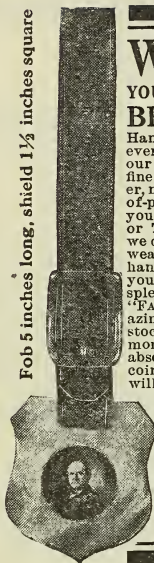
Prices: Untested queens, 75 cts. each; six, \$4.00; doz., \$7.50. Select untested \$1.00 each; six, \$5.00; doz., \$9.00.

I am filling orders by return mail.

Safe arrival and satisfaction guaranteed. Descriptive circular free. Address

J. P. Moore, queen-breeder, Rt. 1, Morgan, Ky.

Fob 5 inches long, shield 1½ inches square



Watch Fob Free

YOUR CHOICE OF CANDIDATES BRYAN OR TAFT

Handsome Campaign Badge you have ever seen. You may have it FREE with our compliments. This fob is made of a fine grade of seal grained Russia leather, nickel-plated buckle, beautiful mother-of-pearl shield, containing a photo of your favorite candidate, either Bryan or Taft. It is guaranteed to be just as we describe it and you will be proud to wear it. We are giving away these handsome fobs to get acquainted with you and to get you acquainted with our splendid and instructive farm paper, "FARM AND STOCK," an up-to-date magazine devoted mainly to corn and live stock. The Watch Fob and a three months' trial subscription given you absolutely free on receipt of 10 cents in coin or stamps to pay for mailing. We will also send you our liberal proposition whereby you can secure other handsome premiums free by giving away several of these fobs to your neighbors. You are sure to be delighted with both fob and paper, so send 10c at once while they last to

FARM AND STOCK

Box 307, St. Joseph, Missouri

FASHION BOOK FREE!

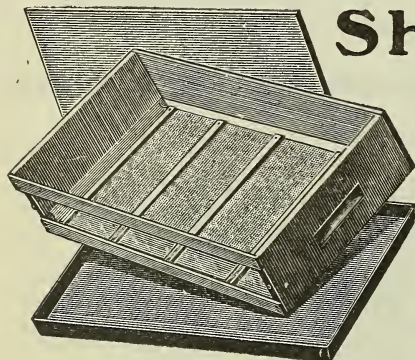
I want to send you my handsome new book showing hundreds of latest styles with illustrated lessons on cutting and dressmaking. I will agree to sell you all the patterns you want for five cts. each. They are the same patterns you have always paid 10c & 15c for at the stores, made by the same people, and correct in every detail.

HOW I DO IT.

I publish the **FARMER'S CALL**, a weekly paper for every member of the family. An especially interesting feature each week are the children's letters; and the Woman's Department is unusually strong and instructive. Among the special features for Women folks, is its fashions in which I show the **5c patterns**. Let me help you to save money.

MY SPECIAL OFFER

Send me 25c and I will send you the **Farmer's Call every week** (over 1000 pages) for one year and will send my big Fashion Book to you free. I also agree to sell you any pattern you want thereafter for 5c. I can sell them for 5 cts because I buy them by the thousand and don't make any profit. I don't want the profit. I want your subscription to the **FARMER'S CALL**. You will save many times the cost of my offer in a year. **WRITE TO-DAY!**
JOHN M. STAHL, Dept. G, QUINCY, ILL.



Shipping-cases

for any number or size of sections desired. These cases are made of fine white basswood, and the workmanship is first class. Owing to the shortage in the honey crop last year we have a good stock on hand and can make immediate shipment.

Twelve-inch case, with follower, to hold 24; or eight-inch case, with follower, to hold twelve beeway sections. shipped when no size is mentioned. All cases single tier unless otherwise ordered.

Honey-packages in Tin.

Standard packages for storing and shipping extracted honey. Less chance for leakage or taint from wood; being square they economize space. Five-gallon cans boxed two or one in a box; gallon cans 10, ½-gallon cans 12 to box. Five, one, or ½ gallon cans not boxed if desired. Prices on application for any quantity.

Place your order now; prices and prompt shipment guaranteed.

MINNESOTA BEE SUPPLY COMPANY
123 Nicollet Island, Minneapolis, Minn.

Oldest Bee-paper in America

This Coupon Worth 35 cents

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Name

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If not now a subscriber and you want one of the most helpful aids to successful bee-culture—a paper that tells how to manage bees to produce the most honey; with market quotations, etc. A dozen different departments—one for women bee-keepers. Best writers.

AMERICAN BEE JOURNAL

A 32-page illustrated 75-cent monthly. It tells all about the best way to manage bees to produce the most honey; with market quotations, etc. A dozen different departments—one for women bee-keepers. Best writers.

It Will Increase Your Honey-Money

If you will send us your name and address with 40 cents (stamps or coin) together with this coupon, we will send you a trial trip of our Journal for 12 months. Order now and let us begin with this month's fine number. Address,

American Bee Journal, 118 West Jackson, Chicago, Illinois

Now in its 48th Year

CLASSIFIED ADVERTISEMENTS

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—To reduce stock I offer for sale as follows: 26 cases of stock No. 40, and 40 cases of stock No. 44 at \$10.80 per case of two 60-lb. (new) cans. This is a raspberry-basswood blend, and is the cream of two apiaries; being extracted from select all-sealed upper stories. A third of a century's experience in the production of fine extracted honey. Ask for my little circular "A Word about Extracted Honey;" this will explain why it pays to buy this delicious stock.

E. D. TOWNSEND, Remus, Mich.

FOR SALE.—150 cases of No. 1 comb honey, 15 sections in 3-inch glass, no-drip cases, 6 cases in a crate, very fine, at \$2.00 per case, f. o. b. cans here. Also 8000 lbs. clover and basswood extracted, in new 60-lb. cans, 2 in case, very heavy body and fine flavor, at 8c, f. o. b. cans here. Sample free. Also extracted in 1-lb. Simplex jars, at \$2.00 per dozen.

W. H. TOWNSEND, Hubbardston, Mich.

FOR SALE.—My new crop of white-clover extracted honey. Honey has been left in full charge of the bees for three weeks after harvest, and is rich, waxy, and of fine flavor, and is as good as a specialist can produce. Price is 9 c. per lb. by the case of 120 lbs. or for the entire crop. Cash to accompany order.

LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

PURE RASPBERRY HONEY, unmixed with other honeys, has a decided raspberry flavor that is simply delicious—one that must be enjoyed to be appreciated. If you never tasted raspberry honey, send me ten cents and I'll mail you a generous sample, and the ten cents may apply on the first order you send me. For further particulars, see large advertisement on page 1167.

W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—New crop of fancy white-clover extracted honey, thoroughly ripened on the hives before extracting. None of better quality on the market. Put up in barrels, new 60-lb. tin cans, and smaller packages if desired. For prices, etc., address

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Aug. 16 we finished taking off our clover, basswood, and button-willow honey. It is principally clover, fine and rich. Delivered at station in 60-lb. square cans, two cans to case; 8½ cts. per lb. Reference, our postmaster or agent, Lakeville, St. Joseph Co., Ind., at which place address C. A. BUNCH.

FOR SALE.—Write for prices on clover, basswood, and buckwheat honey in 60-lb. cans and kegs; also comb honey and beeswax, all guaranteed to be pure.

W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Choice extracted honey for table use, gathered from clover and basswood—thick, well ripened, delicious flavor. Price 9 cts. per lb. in 60-lb. cans, two to case. Sample, 10 cts.

J. P. MOORE, Queen-breeder, Morgan Ky.

FOR SALE.—1908 crop of white-clover honey—a strictly fancy table honey, extracted from capped combs. If you want good honey here, it is put up in new 60-lb. cans, square or round Sample free.

WARREN H. WINCH, Hopkinton, Iowa.

FOR SALE.—5 tons of fine-quality comb and extracted. State amount you wish, and we will quote you our lowest cash price.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Choice white extracted honey, mostly clover and raspberry mixed, in new 60-lb. cans. Price on application. Sample, 10 cts.

JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—Honey, clover, or buckwheat, comb or extracted. Write for price. Sample of clover extracted free. State quantity and quality desired.

C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Basswood extracted honey, left on the hives until thoroughly ripe. One box of two 60-lb. cans, \$9.60.

GUSTAVE GROSS, Lake Mills, Wis.

FOR SALE.—8 tons of raspberry and basswood extracted honey, thick and very fine flavor, in new 60-lb. cans, 2 in case, at 7½ cts., f. o. b. cans here.

J. N. HARRIS, Mancelona, Mich.

FOR SALE.—Fancy clover and also buckwheat extracted honey in new cans, two in a case. Send 10 cts. for sample, which may be deducted from first order. EARL RULISON, Rt. 1, Amsterdam, N. Y.

Extra quality clover honey in N. B. K. A. round cans, 9c; buckwheat, 7c. Satisfaction guaranteed.

F. W. LESSER, Syracuse, Sta. A., N. Y.

FOR SALE.—White and buckwheat extracted honey in cans or kegs. A. E. WOODWARD & SON, Rt. 2, Voorheesville, N. Y.

FOR SALE.—Fancy and No. 1 white-clover comb honey.

ANTON G. ANDERSON, Holden, Mo.

Honey and Wax Wanted

WANTED.—25 tons of fancy comb honey. Write, stating particulars, to C. M. CHURCH, New Kensington, Pa.

Will pay 7c per lb. for gilt-edged white clover, raspberry, or basswood honey, in new 60-lb. cans f. o. b. here; Chicago suburb.

B. WALKER, Clyde, Cook Co., Ill.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT, 199 South Water Street, Chicago, Ill.

Mail small sample, giving quantity you have, how put up, and lowest cash price you will take for it.

E. R. PAHL & CO., Milwaukee, Wis.

WANTED.—We are in the market for white extracted honey, in any quantity up to two or three cars. Mail sample and give source of honey, quality, quantity, and price.

M. H. TWEED & CO., 1125 Penn Ave., Pittsburgh, Pa.

WANTED.—We are in the market for No. 1 white extracted honey in any quantity. Correspondence solicited. State kind, quantity, and price asked. We also have for sale 60-lb. honey-cans, 2 cans in case. Both cans and cases in A1 condition, at 50 cts. per case. MICHIGAN WHITE CLOVER HONEY CO.,

31-33 Griswold St., Detroit, Mich.

Real Estate for Bee-keepers

PECOS VALLEY of New Mexico lands are coining \$50 to \$65 net per acre per year from alfalfa. Forty-five thousand acres of alfalfa in bloom five times a year, surrounding Artesia, means honey for the bee-keeper. Live in an ideal fruit country, where the largest artesian wells in the world constantly pour out their wealth. Artesia, the future Rose City, already has the famous "Mile of Roses." Homeseekers' excursions the first and third Tuesdays of each month. Agents wanted, to accompany parties. Write to-day to R. M. LOVE, General Agent, Artesia, N. M.

FOR SALE.—Delaware farm, public road; good buildings, good water; fruit, wood; rural delivery; school, churches, stores, mills, railroad depot, canneries, blacksmith shops, all convenient; an ideal place for bees, poultry, fruit, and trucking.

I. A. LUDWIG, Maryland, Md.

FOR SALE.—Five-acre fruit, vegetable, and bee ranch, one mile from Grand Junction, city of 10,000; 28 stands of bees; new house, honey-house, horse-wagon, buggy, tools; no failures here; finest location; pasture for 300 stands, all for \$3000.

ROY D. TAIT, Grand Junction, Colo., Rt. 3.

FOR SALE.—Small homestead, first-class buildings, fully equipped apiary, in one of the most desirable locations to be found; will sell for less than the improvements can be replaced for. This was the home and the apiary of the late B. Taylor at Preston. Write for particulars. ALF. A. ZIEMER, Waltham, Minn.

FOR SALE.—California foothill ranch, San Diego Co., 160 acres, twenty-five in cultivation; house and barn; three acres orchard; 100 hives of bees; one span of horses; bee material and farming tools, \$1800.

AUSTIN E. WHITE, Fallbrook, California.

WANTED.—To correspond with parties desiring a location of bee culture. Miles of palmettos, black mangrove, and a good-sized bearing orange-grove. Island. Very healthy.

POSTMASTER, Carlos, Lee Co., Fla.

FOR SALE.—Farm of 14 acres near city of 20,000; good soil, market, and bee pasture. L. C. HOOK, Richmond, Ind., Rt. 3.

For Sale

FOR SALE.—Tasmanian necklace shells, any quantity. Sample sent. G. H. SMITH, Ramsgate, Tasmania.

FOR SALE.—Sweet-clover seed, 15 cts. per pound. postage extra. Root's supplies. ANTON G. ANDERSON, Holden, Mo.

FOR SALE.—Shipping-cases, the no-drip kind; overstocked; get our special prices. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—Duroc Jersey, Hampshire, and Tamworth swine; fancy poultry, Collie dogs. Send for circular. JNO. M. WHEELER, Winchester, Ky.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Melilotus (sweet clover) seed for sale at 8 cts. per lb. Write for catalog and particulars. W. P. SMITH, Penn, Miss.

FOR SALE.—About 1300 or 1400 cases, two five-gallon cans each, practically free from nail-holes, and were new tins when originally shipped to us. Make us an offer. CLEVELAND HEALTH FOOD CO., Cleveland, O.

FOR SALE.—Beautiful long-haired Persian and Angora cats and kittens; solid whites and various colors; none better. Send stamp for written reply. KENSINGTON CATTERY, Marion, Ohio.

Bees and Queens

FOR SALE.—75 first-class colonies of bees, mostly in ten-frame hives. J. D. HOLDENER, Carlyle, Ill.

FOR SALE.—100 colonies at Horseheads, N. Y., complete for extracted honey, \$2.50 each. WM. CARDER, Constance, Ky.

FOR SALE.—First-class apiary of 120 colonies with all supplies. Write for particulars to J. B. HALL, Box 595, Woodstock, Ont., Can.

FOR SALE.—Fine yard of 80 colonies and combs, supers, etc., at Naples. Eighty $\frac{3}{8}$ -in. fine winter-cases here. F. W. LESSER, Syracuse, N. Y. Sta. A.

FOR SALE.—100 colonies of bees in new Danz. hives at \$4.50 each; 2-frame Cowan extractor, new, \$10.00; 120 Danz. supers at 50 cts. Other supplies. W. A. LATSHAW, Carlisle, Ind.

FOR SALE.—First-class apiary of 150 colonies, fixtures and supplies; 45 are in Danz. hives; balance in Dovetailed. Good condition; no disease. Will sell very reasonable in lots to suit. For particulars write W. F. STUART, Ottawa, Kansas.

FOR SALE.—For 30 days I offer my bee-outfit at about 60 to 65 cts. on the dollar—a little disease but under good control. This is an opportunity of a lifetime for the right man. D. E. LHMEDIEU, Colo, Iowa.

FOR SALE.—Italian bees and queens now ready. Untested, \$1.00; tested, \$1.50. Bee-keepers' supplies, Root's goods. Send for prices. Eggs from Silver-laced Wyandotte poultry. N. V. LONG, Biscoe, N. C.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$4.00; twelve, \$7.00. Carniolan, Banat, and Caucasian queens, select, \$1.00; six, \$5.00. Tested, any kind, \$1.25; six, \$6.00. Choice breeding queens, \$3.00 each. Circular free. W. H. RAILS, Orange, Cal.

FOR SALE.—250 colonies of bees in ten-frame hives at \$2.75 per colony; no disease; fixtures for comb and extracted honey cheap; also 22 acres of land; first-class buildings, and improvements. If not sold by Jan. 1 a reliable man is wanted to rent or run bees and farm on shares. J. H. ZEINER, Bard, Ark.

Poultry Offers

A. I. Root's Bee-goods, Poultry-supplies, Seeds, etc. STAPLER'S, 412-414 Ferry St., Pittsburgh, Pa.

FOR SALE.—Indian Runner ducks, great layers, ca. 4 per pair ever, \$2.00 each; \$3.50 per pair. \$5.00 per trio. Circular free. KENT JENNINGS, Mt. Gilead, Ohio.

Help Wanted

WANTED.—Ge man and wife to care for truck, poultry, fruit, and bees in Virginia. 35754 Gleanings, Medina, O.

WANTED.—Capable man 30 to 40 years of age, married, to take charge of small farm in Ohio. State experience, salary wanted, date could begin, and give names of references. Address JOHN SMITH, Gleanings in Bee Culture, Medina, O.

WANTED.—Young man to learn the poultry business, one willing to work; not much work outside of the poultry part of it. Write at once. HOUSE ROCK POULTRY FARM, East Weymouth, Mass.

Wants and Exchanges

WANTED.—Bees. Car lots or less for spot cash. All letters answered. F. B. CAVANAGH, Springfield, Mich.

SWAP.—Scholarship I. C. S., transfer value \$65.00, for poultry, incubator brooders, or Shetland pony and rig, and pay difference. GEORGE WANSEY, Cranford, N. J.

WANTED.—Refuse from wax-extractors and old comb for cash. ARCHIE COGGSHALL, Groton, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum State quantity and price. ORREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

Bee-keepers' Directory

I no longer club a queen with GLEANINGS. W. T. CRAWFORD, Hinston, La.

Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of Root's goods. Save freight. Write.

No more queens for sale this fall. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, \$3.00. A. L. AMOS, Comstock, Nebraska.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ROOT'S BEE SUPPLIES. Send for catalog. D. COOLEY, Kendall, Mich.

Mott's long-tongues by return mail, also goldens—hardy, yet gentle, but little or no smoke. E. E. MOTT, Glenwood, Mich.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send card to T. F. BINGHAM, Farwell, Mich.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

Golden-all-over and red-clover Italian queens; circular ready. W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

Root's bee-supplies at factory prices, *Black Diamond Brand Honey*, and *bee-literature*. Catalog and circulars free. GEO. S. GRAFFAM & BRO., Bangor, Maine.

QUEENS.—Improved red-clover Italian, bred for business, June 1 to Nov. 15, untested queens, 60 cts.; select, 75 cts.; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Improved Italian queens now ready. Nuclei and colonies May 1 to 10. Over twenty years a breeder; 500 colonies to draw on. Free circulars and testimonials. For prices see large advertisement in this issue.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ITALIAN BEES AND QUEENS. I breed three-banded stock only, and use the finest breeding stock to be had. For prices, see display advertising columns in this issue. Send for price list. Twenty-five years' experience.

F. J. WARDELL, Uhrichsville, O.

TENNESSEE QUEENS.—Best that experience can produce. Untested three-band and goldens, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Caucasians, \$1.25 each. Write for circular; order goldens from Ben G. Davis; others from John M. Davis, Spring Hill, Tenn.

Breeding queens of pure Caucasian and Carniolan races—price \$3.00. Order from A. E. Titoff, Expert in Apiculture, with Russian Department of Agriculture, Kieff, Russia. Remit with orders. Correspondence in English.

SPECIAL NOTICES

By Our Business Manager

THE LORE OF THE HONEY-BEE, BY TICKNER EDWARDS.

This is a fine new book about bees by an authority who wields a facile pen—an original work, beautifully illustrated and finely printed. Something fine for the long winter evenings. See review of the book in this issue, page 1170. Price \$2.00.

Mr. W. S. Williams, of Julian, Pa., called here recently on a trip through the State. Mr. Williams is one of those bee-keepers who believe in preparing long in advance for the next honey harvest. The demands of his own yard and the inquiries of his neighbors warrant him in laying in a good stock of supplies in the fall when the largest early-order discount is in force.

L'ELEVAGE INDUSTRIAL DES REINES.

We are pleased to notice that Mr. E. L. Pratt's book, "Commercial Queen-rearing," may now be obtained in the French language. It makes a very neat and attractive booklet with the above title, and, so far as we can see, great pains have been taken with the work of translation, and in all respects it is quite equal to the English edition, and possibly a little better. Those who prefer to read in French will find the perusal of this little work will supply the reader with the latest and most scientific ideas in practical queen-breeding. The price is 50 cts. postpaid. Orders for it can be sent to The A. I. Root Co., Medina, Ohio.

DISCOUNTS FOR EARLY CASH ORDERS.

On October cash orders we allow 6 per cent discount.

" November "	" " " "	5 " " "
" December "	" " " "	4 " " "
" January "	" " " "	3 " " "
" February "	" " " "	2 " " "
" March "	" " " "	1 " " "

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order the discount may be deducted from the whole order, including these items which are otherwise excepted.

Special Notices by A. I. Root

PROF. HOLDEN'S BOOK ON CORN CULTURE.

In our issue for Dec. 15, 1906, I pronounced the above book the most valuable one of its size that has been given to the cause of agriculture in the last hundred years, and I think so yet. By following the teachings of that book we have now ten acres of corn almost ready to husk that has given us a yield twice as large as we should have had, if I had not got hold of the book and afterward heard Prof. Holden give his corn lecture. What brings the matter up just now is that the book is now sold by the Farm News Co., Springfield, Ohio, for the very small sum of 10 cts. You know I have found some fault about big prices for small books on poultry and other subjects; but this corn book is certainly a most wonderful bargain. If carefully studied by the average corn-grower it ought to be cheap at a dollar, and I might almost say ten dollars. I hope it may have a tremendous sale, and that every farmer who does not already have it will at once get a copy.

SITTING HENS—HOW TO CURE THEM.

In answer to Dr. Miller's question on the first page, I would reply that sitting hens have not troubled me this summer, because I am glad to see them and give them some eggs and let them

sit. Your remedy is excellent. It is like carrying bees to an out-apiary. With sitting hens, as with almost every thing else, a stitch in time saves nine. If the hen is taken the very first evening she is found on the nest, when it is time to go to roost, and shut her up, or, better still, take her outside the yard or to some other yard, she will often give it up and go to laying almost immediately. If she sits on the nest just one night she will be so much the more stubborn about it. Don't let a single hen set on eggs even one night where you do not want sitting hens. If you are obliged to shut them up somewhere, do not put them on the ground or on the floor. Have the bottom of the box either wire cloth or lath, so the hen can not warm up the ground or floor beneath her. Cool her off, and get her over her fever for raising chickens, as quickly as possible. I have frequently broken them of their desire to sit by keeping them away from their accustomed nests just two nights. It is a much easier matter where the nests are some distance apart; and, even though it does make more labor in gathering the eggs, I much prefer to have the nests scattered about in different parts of the yard. In cold weather, when they are confined to the poultry-house I would have them in different parts of the inclosure, say some up near the roofs, and some down in the corners. The upstairs part of the Philo poultry-house seems to please the hens to do. Where you have several hens sitting at the same time, the nests should all be far enough apart so there can be no "differences of opinion" as to which hen the nest belongs to.

NAVIGATING THE AIR; THE WRIGHT BROS. UP TO DATE.

On page 1097, Sept. 1, I said, "May God grant that no accident may happen to these two intrepid brothers." I then had in mind, and have had in mind all along, that during these preliminary experiments there would be accidents, and, in all probability, loss of life. Well, an accident has happened; and although Orville Wright has been spared so that he may take up his work again soon, we regret the loss of the life of his companion who was with him. Most of you have seen accounts in the papers. One of the wings of the propellers broke in midair; and before young Wright could adjust his machine it came down to the ground with a crash. It is reported that he said if he had been 75 feet higher up he could have brought the machine into shape so it would have alighted safely. There is quite a misapprehension, I notice by the papers, in regard to danger with the Wright machines. Their first experiments were with gliding machines, so that if any thing happened to their engine they could still glide to the ground; and no mishap would have occurred this time had Mr. Wright been able to cut off the power the very instant the wing broke. These propeller wings are selected of the very best Vermont spruce, or at least such was the case when I was with them. This spruce has more strength in proportion to its weight than any other known material, not even excepting aluminum; and these blades are most thoroughly tested before using them. The extra strain on the machine by having a second passenger is probably what caused it to break, although it has been suggested that a broken wire may have struck the blade and caused the fracture. Since this accident I suppose every wire and piece of wood will be still more severely tested than ever before. Wilbur, the brother in France, has said, we are told, that, instead of taking a passenger, he will, at least for the present, carry a bag of sand equal in weight to a passenger.

Orville's injury, so far as we can learn by the papers, was a broken bone in his thigh, and one or more ribs fractured. As we go to press we are told that his prospects for full recovery are very favorable. We learn from the *Woman's National Daily* that on the 22d of September Wilbur Wright broke all previous records by remaining in the air 91 minutes, and covering in all about 61 miles. Here is what the paper says about it:

"There was nothing marvelous in the performance," Wright said to a group of admirers. "The machine is built on the right principles; and as long as it is properly manned it has got to fly. I could have stayed up another hour or until the petrol was exhausted; but it was getting dark and I thought it best to come down. I am glad for my sake that the flight was such a success, but doubly glad on Orville's account. Many thought when my brother met with his regrettable accident last week that our machines were failures, and that we had been enabled to fly largely through good luck. Well, I think they ought to be satisfied now that the aeroplane is all that we have claimed for it, and that the coming machine will be built along the lines that we have laid down."

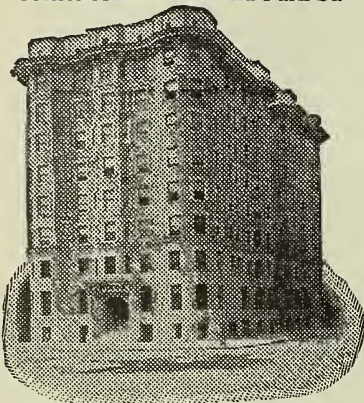
Ten thousand persons witnessed the record-breaking flight of Mr. Wright.

SHALL WHISKY RULE?

States represented and ruled by ignorant men must remain ignorant. States represented by corrupt men remain corrupt. States ruled by gamblers are gambling States, and States represented and ruled by whisky men remain drunk; and the unspeakable pity is that the home, with its tender charges, must share the blighting influence of these evils.—*The Seattle Post-Intelligencer.*

WHEN IN DETROIT STOP AT HOTEL TULLER

New and Absolutely Fireproof
Corner Adams Ave. and Park St.



In Center of the Theater, Shopping, and Busin District

A LA CARTE CAFE
Newest and Finest Grill Room in the City

Club breakfast, 40c up. Lunch, 50c. Table d'hôte dinners, 75c
Music from 6 P. M. to 12 P. M.

Every Room has Private Bath

EUROPEAN PLAN.

RATES \$1.50 PER DAY AND UP

L. W. TULLER, Prop. M. A. SHAW, Mgr.

The Wellington Hotel

Cor. Wabash Ave. and Jackson Boulevard
CHICAGO



REMODELED AT A COST OF
1,000,000

**Hot and Cold Running Water and Long
Distance 'Phones in all Rooms**

200 Rooms 100 with Bath Single or en Suite

RATES \$1.00 AND UPWARDS

One of the most unique Dining-rooms in the country.
Our famous Indian Cafe.

Noted for service and Cuisine

McCLINTOCK & BAIFIELD, Props.

Convention Notices.

MEN AND WOMEN WHO EXPECT TO ATTEND THE NATIONAL CONVENTION.

The following persons have taken the pains to write and tell me that they expect to attend the coming National convention at Detroit:

Aspinwall, L. A., and wife.
Abbott, E. T.
Ahlers, H. C., and wife.
Barb, J. S.
Brovald, A. C.
Carr, E. G.
Coveyou, Elias E.
Cavanagh, F. B., and wife.
Chrysler, W. A.
Chapman, S. D.
Cameron, R.
Carter, Wm.
Cutting, H. D.
Dickinson, E. and wife.
Darby, M. E.
France, N. E., wife, children.
Fowls, Chalon, and wife.
Forbes, W. E.
Furnass, W. C.
Frazier, W. S.
Gute, Martin.
Hutchinson, W. Z., and wife.
Hutchinson, Elmer, and wife.
Halter, A. J.
Hilton, Geo., and wife.
Holtermann, R. F.
Harmer, Walter.
Hunt, E. M.
Hurley, James J.
Hand, J. E.
Hershiser, O. L.
Huber, L. B.
Lewis, J. L., and wife.

Muth, Fred W., and wife.
McKnight, W. L.
Miller, F. J., and wife.
McDonald, Fred B., and wife.
Morrison, W. K.
Myers, Wm.
Myers, Thomas.
Manley, Wm. J.
Manley, Herbert J.
Mandeville, M.
Pressler, E. E.
Pettit, S. T.
Phillips, E. F.
Root, A. I.
Root, E. R.
Root, H. H.
Smith, C. F., and wife.
Sims, J. S.
Smith, F. H., and wife.
Soper, W. D.
Strittmatter, F. J.
Tyrrell, E. B.
Taylor, R. L., and wife.
Townsend, E. D., and wife.
Tyrold, John.
Thompson, Decker.
Werner, Louis.
Wilcox, Franklin.
White, W. G.
Williamson, G. T., and wife.
Wood, A. D. D.
Wright, W. D.
York, Geo. W.

Let no one think that the foregoing are all the persons who will be present, as not one person in a dozen will take the trouble to write to the Secretary and say that he is going; besides, many don't make up their minds to go, until the very last moment. Notice the number of ladies who are to be present. There will be more ladies present at this convention than have ever before graced a convention with their presence. Come, and bring your wife.

W. Z. HUTCHINSON, Sec.

The semi-annual convention of the Connecticut Bee-keepers' Association will be held Friday, October 16, 1908, room 50, State Capitol, Hartford. All bee-keepers are cordially invited to meet with us. Bring something for exhibition.

JAMES A. SMITH, Sec'y, Box 38, Hartford.

PANHANDLE BEE-KEEPERS' CONVENTION.

The Panhandle Bee-keepers' Association will meet in Knights of the Golden Eagle Hall, corner 38th Street and Jacob Street, Wheeling, West Virginia, on Monday, Nov. 16.

W. L. KINSEY, Sec.

The annual meeting of the Northern Illinois and Southern Wisconsin Bee-keepers' Association will be held in the courthouse in Rockford, Ill., on Tuesday and Wednesday, Oct. 20 and 21, 1908. All interested in bees are invited to attend.

Cherry Valley, Ill.

B. KENNEDY, Sec.

HOTEL TULLER.

The editors of GLEANINGS will make their headquarters at the Tuller during the convention. Our friends are invited to secure rooms there also.

E. R. ROOT.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention, October 13, 14, 15, in the Sun Palace of the Wayne Hotel, at the foot of Third St., Detroit, Mich. Headquarters will be at the Wayne Hotel, where the rates to bee-keepers are \$2.50 per day when two persons occupy the same room. There are plenty of other hotels in the vicinity where the rates vary from \$1.25 to \$2.25 per day.

The Michigan State Bee-keepers will hold a session at the same place on the afternoon of the 13th, beginning at 2 P. M. The first regular session of the National will be held on the evening of the 13th.

OCTOBER 13—FIRST DAY—EVENING SESSION.

"Demonstration of Handling Live Bees in a Cage," by E. R. Root, of Medina, Ohio.

"Bee-keeping in Hawaii," by Prof. E. F. Phillips, of the Apicultural Bureau, Washington, D. C. This lecture will be illustrated by stereoscopic views secured by Prof. Phillips during his recent trip to Hawaii.

"Moving-picture Exhibition," by E. R. Root, of Medina, Ohio. To run this film through the lantern requires about ten minutes, and it gives a fair idea of some of the "stunts" they do in England when handling bees. Some of them are decidedly mirth-provoking.

OCTOBER 14—SECOND DAY—MORNING SESSION.

8:00 A. M.—President's Address.

"The Bacteria of Bee Diseases," by Dr. G. F. White, of the Apicultural Bureau, Washington, D. C.

"How to Detect and Know Bee Diseases," by W. D. Wright, of Altamont, N. Y., one of the New York Inspectors of Apiaries.

RECESS OF 15 MINUTES.

"Getting Rid of Foul Brood with the Least Financial Loss," by R. L. Taylor, of Lapeer, Mich., Inspector of Apiaries for Michigan.

General Discussion on Diseases of Bees.

Question-box.

ADJOURNMENT.

OCTOBER 14—SECOND DAY—AFTERNOON SESSION.

2:00 P. M.—Debate on the following: "Resolved, That an eight-frame Langstroth hive is preferable to a larger hive in extracted-honey production." affirmative taken by S. D. Chapman, of Mancelona, Mich., and the negative by R. F. Holtermann, of Brantford, Ont. Each contestant is allowed to speak twice, using not more than 15 minutes each time.

General discussion of the subject.

Question-box.

RECESS OF 15 MINUTES.

"Turning Winter Losses into Profit," by W. J. Manley, of Sandusky, Michigan.

Question-box.

Adjournment, and members photographed in a group.

OCTOBER 14—SECOND DAY—EVENING SESSION.

7:00 P. M.—This session is to be in a lighter vein—as the story is to be more solid reading. It is to be in imitation of the toasts that usually follow a banquet—that is, responses to sentiments. The speakers are to remain unknown until announced by the toastmaster, but the list of topics is as follows:

Securing Legislation for Bee-keepers.

Rough Spots in the Pathway of an Inspector of Apiaries.

Late Apicultural Inventions.

The Possibilities of Future Bee-keeping.

The Cost of Honey Production.

Bee-keepers as Temperance Reformers.

The Friendship of our Fraternity.

ADJOURNMENT.

OCTOBER 15—THIRD DAY—MORNING SESSION.

8:00 A. M.—"Locating Apiaries," by E. D. Townsend, of Remus, Mich.

Discussion.

Question-box.

RECESS OF 15 MINUTES.

Question-box.

ADJOURNMENT.

OCTOBER 15—THIRD DAY—AFTERNOON SESSION.

2:00 P. M.—"How to Secure Good Prices for Honey, even in Years of Bountiful Yields," by O. L. Hershisser, of Kenmore, N. Y. Discussion.

RECESS OF 15 MINUTES.

Question-box.

Adjournment to see honey extracted with an eight frame automatic extractor, with gasoline-engine as power.

The foregoing is simply an outline, a sort of skeleton, which will be filled out with good things.

W. Z. HUTCHINSON, Sec. N. B. K. A.

PREMIUMS OFFERED AT THE NATIONAL CONVENTION.

Through the generosity of the leading manufacturers and dealers the following liberal premiums are offered for the display of bees, honey, and wax at the coming national convention:

Best and largest display of single-comb nuclei of different varieties of bees, accompanied by queens; condition of bees, purity of race, and beauty of hives to be the competing points.

1st premium, 2000 No. 1 sections by the G. B. Lewis Co., Watertown, Wis.; 2d premium, \$3.00 Italian breeding-queen from the Medina apiary of The A. I. Root Co.; 3d premium, two years' subscription to the *Canadian Bee Journal*, by the Hurley Printing Co., of Brantford, Ontario.

Best ten sections of comb honey, completeness of filling of section, evenness of surface of comb, completeness of capping, freedom from travel-stain, and general neatness and appearance to be the competing points.

1st premium, 1000 No. 1 sections from the G. B. Lewis Co., of Watertown, Wis.; 2d premium, cloth-bound copy of the A B C and X Y Z of Bee Culture, by The A. I. Root Co.; 3d premium, one year's subscription to the *Canadian Bee Journal*, by the Hurley Printing Co., and one year's subscription to the *American Bee Journal* by Geo. W. York & Co., Chicago, Ill.

Best ten pounds of liquid extracted honey, quality and manner of putting up for market to be considered.

1st premium, 1000 No. 1 sections, by the G. B. Lewis Co., of Watertown, Wis.; 2d premium, Jumbo copper smoker, by The A. I. Root Co.; 3d premium, Root Standard tin smoker, by W. D. Soper, of Jackson, Mich., and one year's subscription to the *American Bee Journal*, by Geo. W. York & Co.

Best ten pounds of granulated honey; quality, including fineness and smoothness of grain, and manner of putting up for market to be considered.

1st premium, 1000 No. 1 sections, by the G. B. Lewis Co., of Watertown, Wis.; 2d premium, Standard tin smoker, by The A. I. Root Co.; 3d premium, one year's subscription to the *American Bee Journal*, by Geo. W. York & Co.

Best ten pounds of beeswax; color, texture, and beauty of the cake or cakes in regard to shape to be considered.

1st premium, one \$5.00 Italian breeding-queen from the Medina apiary of The A. I. Root Co.; 2d premium, one year's subscription to the *American Bee Journal*, by Geo. W. York & Co.; 3d premium, one Root hive-tool, by The A. I. Root Co.

The most important late apicultural invention that has not before been awarded a premium.

1st premium, \$5.00 worth of bee-supplies, "Root Quality," by M. H. Hunt & Son, of Lansing, Mich.; 2d premium, one full leather-bound copy of the A B C and X Y Z of Bee Culture, by The A. I. Root Co.; 3d premium, one copy of Advanced Bee Culture, by W. Z. Hutchinson, Flint, Mich., and one year's subscription to the *American Bee Journal*, by Geo. W. York & Co.

For the best single section of comb honey, A. G. Woodman & Co., of Grand Rapids, Mich., offer one Woodman Protection hive; for the second-best single section they offer 1000 No. 1 Lewis sections; for the third best, one advanced bee-veil.

For the best single section of honey stored in a Marshfield section box, W. D. Soper, of Jackson, Mich., offers 500 No. 1 Marshfield sections. For the best ten pounds of comb honey produced with Dittmer foundation, Mr. Soper offers three pounds of Dittmer's extra-thin foundation.

The judge to pass upon the above exhibits will be appointed by the president. W. Z. HUTCHINSON, Sec. N. B. K. A.

KIND WORDS.

GLEANINGS pays better than papers with a circulation of 100,000 or more.

I am very much surprised at the results that your paper brought me. The first advertisement that I ever inserted in your journal was on page 250 of your Feb. 15th issue; and I must state that it has brought me better results than any advertisement that I ever had in papers that boasted of from 105,000 to 250,000 readers.

Iowa City, Ia., March 3.

J. F. BUCKMAYER.

A small advertisement brings *lots* of orders. Notice what she says—*orders*, not inquiries.

The A. I. Root Co.:

My advertisement in your journal is bringing lots of orders, and I am sending out better queens than ever this year. I get some very flattering compliments for queens sent last year.

Waterloo, N. Y., June 24.

MRS. J. W. BACON.

Bees all sold from advertisement in GLEANINGS.

The A. I. Root Co.:

My bees are all sold out to parties who saw my advertisement in your journal. We find it a splendid advertising medium.

Minneapolis, Minn.

P. H. DAVIS.

The A. I. Root Co.:

The 25-line property-for-sale advertisement brought me letters from Canada to Mexico, and from the Atlantic to the Pacific. I do not know how many, but lots of them.

Lusardi, Cal., July 29.

A. J. BURNS.

SUBURBAN LIFE

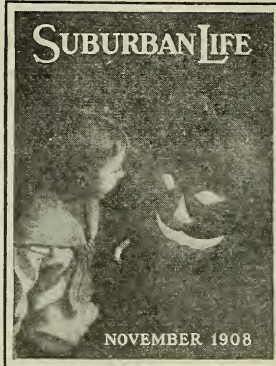
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THE BEST PRINTED PERIODICAL IN AMERICA

The magnificent illustrations and unexcelled presswork of Suburban Life delight the eye of the reader, while the high standing of our writers makes every line of reading matter of practical value to the great number of people who reside in suburban homes, or who are truly appreciative of country life, with its manifold outdoor interests. You read Suburban Life because every number is brimfull of bright, spicy, interesting matter, as you will note from a glance over a partial list of the Table of Contents for the November issue:

FIVE ACRES AND CONTENTMENT
A WORKSHOP AT HOME
MAKING A HOME GYMNASIUM
A CLUBROOM FOR THE BOYS AND GIRLS AT HOME



THE SMALL ENGINE AND THE MOTOR
THE STEREOPTICON IN THE HOME
A WOMAN'S SQUAB PLANT
A HALLOWE'EN PARTY
DRESSING THE HORSE, ETC.

Other interesting features for succeeding numbers appeal to every member of the home, and include:

SOCIAL LIFE—The Long Day of the Commuter's Wife.
Evening Amusements at Home.

LIVING FROM THE LAND—Can I Make a Living from a Small Place? Personal Experiences of People Who Are Making Good, Comfortable Incomes from Less than Twenty Acres.

THE NEW NATURE STUDY—Night Prowlers Who Aid the Farmer. What Will Happen When the Birds Are Gone?

TIMELINESS—What Ought to Be Done Each Month About the House and Grounds, in the Greenhouse, the Stable and Poultry Yard.

THE HOME—Artistic and Sensible Window Draperies. New Things in Furniture. Sleeping-Porches.

WOMAN'S WORK—Personal Experiences of a Number of Women Making a Living in the Country.

FLOWER AND VEGETABLE GARDENS—An Electric Hotbed. Garden Insects and Diseases.

OTHER FEATURES—Poultry, pigeons, the horse, the cow, the dog, the cat, bees and pet stock, will receive the attention which their importance merits.

CIVIC IMPROVEMENT—This important topic will be treated in a practical manner, and also the subject of conservation of our natural resources.

These are but a few of the many good things in store for our Suburban Life readers the coming season

25 CENTS A COPY, ON ALL NEWS STANDS. \$3 A YEAR.

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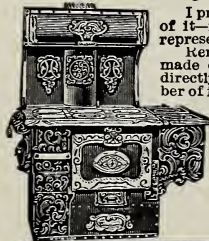
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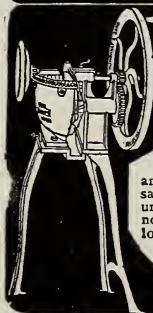
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One 60-lb. can	10c “
Six 10-lb. cans or more	\$1.15 each
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